SLV-474/474UB/474VP
RMT-V474

SERVICE MANUAL

AEP Model
SLV-474

UK Model
SLV-474UB

West Germany Model
SLV-474VP

For MECHANICAL ADJUSTMENTS, refer to the "VHS MECHANICAL ADJUSTMENT MANUAL II" (9-972-816-11)

Remote commander RMT-V474 is available as a unit, but as individual parts the battery case lid of commander is only available.

SPECIFICATIONS

System

Format	VHS PAL standard
Video recording system	Rotary two-head helical scanning FM system
Video signal	PAL colour (System B and G: SLV-474/474VP, System I: SLV-474UB/474EI) DDR SECAM colour (SLV-474VP) CCIR monochrome signals 625 lines
Tape speed	SP: 23.39 mm/sec. LP: 11.70 mm/sec.
Maximum recording/playback time	SP: 4 hours (with E-240) LP: 8 hours (with E-240)
Fast-forward/rewind time	Approx. 3 min. 20 sec. (with E-180)
High speed rewind time	Approx. 2 min. 20 sec. (with E-180)

Tuner Section

Tuner system (audio)	Intercarrier system
Channel coverage	SLV-474/474VP VHF channels E2 — E12 (A to H only for Italy) CATV channels S01 — S03 CATV channels S1 — S20 HYPER S21 — S41 UHF channels E21 — E69 SLV-474UB UHF channels B21 — B68 SLV-474EI VHF channels A — J UHF channels E21 — E69
RF output signal	SLV-474/474VP UHF channels E30 — E39 (adjustable) SLV-474UB UHF channels B30 — B39 (adjustable)
Aerial out	75-ohms asymmetrical aerial socket

Inputs and Outputs

Video inputs	LINE 2: phono jack EURO-AV: 21-pin (pin 20) 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio inputs	LINE 2: phono jack 47 kilohms, −7.5 dBs (0 dBs = 0.775 V rms) EURO-AV: 21-pin (pins 2 and 6) More than 10 kilohms, −4 dBs

VHS SECAM VHS PAL

VHS VIDEO CASSETTE RECORDER

SONY®

MICROFILM

Video output	EURO-AV: 21-pin (pin 19) 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio output	EURO-AV: 21-pin (pins 1 and 3) Output impedance: less than 1 kilohm – 4 dBs with 10 kilohms load
CONTROL L	5 pin DIN (1)
CONTROL S IN/OUT	Minijack (2)
Microphone input	Mini jack – 60dBs, for low impedance microphone

Timer Section

Clock	Quartz locked
Time indication	24-hour cycle
Timer setting	Only for recording 8 programmes in one month at max.
Timer back-up	Built-in self-charging capacitor Back-up duration: Up to an hour at one time

General

Power requirements	240 V AC, 50 Hz (SLV-474UB) 220 V AC, 50 Hz (SLV-474/474VP/474EI)
Power consumption	29 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	– 20°C to 60°C (– 4°F to 140°F)

Dimensions	430 × 87 × 358 mm (w/h/d) (17 × 3 3/8 × 14 1/4 inches)
Weight	6.0 kg (13 lb 4 oz)

Wireless Commander RMT-V474

Remote control system	Infrared control
Command mode	VTR 1/2/3
Power requirements	3 V DC, two IEC designation R6 batteries
Dimensions	75 × 45 × 235 mm (w/h/d) (3 × 1 3/4 × 9 1/4 inches)
Weight	220 g (8 oz) excluding batteries

Accessories Supplied

Wireless Remote Commander RMT-V474 with two R6 batteries	(1)
75-ohm coaxial cable	(1)
Screwdriver	(1)
AC power cord	(1)

Design and specifications are subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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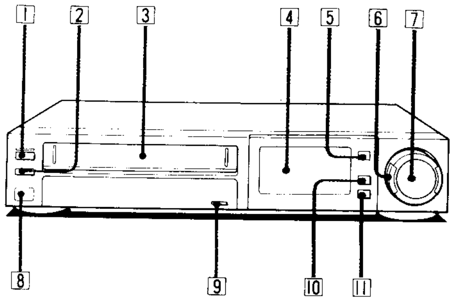
SECTION 1
GENERAL

This section is extracted from instruction manual.

Identifying the Operational Parts



Front

1 **ON/STANDBY switch and indicator**

2 **≜ EJECT button**
Press to eject the cassette. This button does not function during recording.

3 **Cassette compartment**

4 **Display window and function mode display**
See "Indications in the Display Window." (page 70)

5 **EDIT MONITOR button**
Press to display the picture selected with the INPUT SELECT switch and that being recorded on this unit simultaneously.

6 **DUAL MODE SHUTTLE ring**

In the stop mode	Turn the ring clockwise (▶▶) to advance the tape rapidly, and counterclockwise (◀◀) to rewind the tape.
In the playback mode	Turn the ring clockwise (FORWARD) to advance and counterclockwise (REVERSE) to reverse the picture in various speeds. When the ring is released a still picture is obtained.

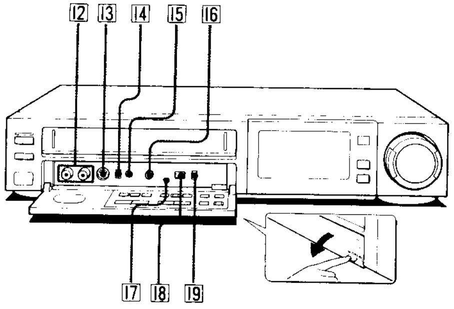
7 **▷ PLAY button**

8 **REMOTE sensor**
Point the Commander here.

9 **▼ OPEN**
Press to open the front panel.

10 **II/▶◀ PAUSE/STILL button**
In the playback mode: Press to obtain a still picture.
In the recording mode: Press to pause.

11 **■ STOP button**



Front

12 **LINE IN 2 VIDEO/AUDIO jacks (phono type)**
Connect to the video/audio output jacks of another VTR or a video camera recorder.

13 **CONTROL L connector (5-pin DIN type)**
Connect to the CONTROL L connector of other Sony product for systematic operations such as synchronized editing.

14 **LANC mode selector**
For synchronized editing by controlling with this VTR, set to M.
Set to S when you edit a tape with an editing controller such as the Sony RM-E300.

15 **MIC jack (mini type)**
Connect a microphone.

16 **SHARPNESS SOFT/SHARP control**
Use to adjust the sharpness of the picture if necessary. Normally set this control at the center position.

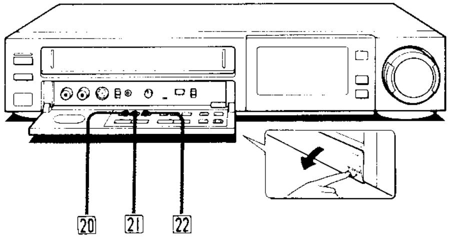
17 **SYNCHRO EDIT indicator**

18 **VPS (Video Programme System) ON/OFF switch (SLV-474VP only)**
(page 51)

19 **COMMAND MODE VTR 1/2/3 selector**
(page 16)
Set to the same position as the COMMAND MODE switch on the Commander.

About the (LANC)
LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

Identifying the Operational Parts



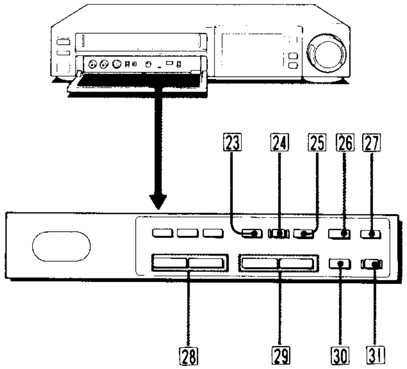
Front

20 TV/VTR button
Press and light the VTR indicator in the display window to view the playback of the VTR or a programme selected on the VTR. Press this button again to turn off the VTR indicator to view a programme selected on the TV. This button is effective only when the VTR is connected to the TV via EURO-AV.

21 INPUT SELECT button
Press to select the signals to be recorded by the VTR. The selected mode will be indicated in the display window as follows:

TUNER: To record TV programmes.
LINE L1: To record the signals from equipment connected to the EURO-AV.
LINE L2: To record the signals from equipment connected to the LINE IN 2 jacks.

22 REC MODE (SP/LP) button
Press to select the recording tape speed SP or LP.



Front

23 SYNCHRO EDIT button (page 65, 66)
Press to perform synchronized editing.

24 TIMER REC ON/OFF button
Press this button to enter the timer recording standby mode. Press it again to release the timer recording standby mode before changing or cancelling a timer recording or to operate the unit before a timer recording starts.

25 QUICK TIMER button (page 53)
Press to activate the quick timer recording function.

26 AUDIO DUB button (page 68)

27 ◄◄◄ HIGH SPEED REWIND button

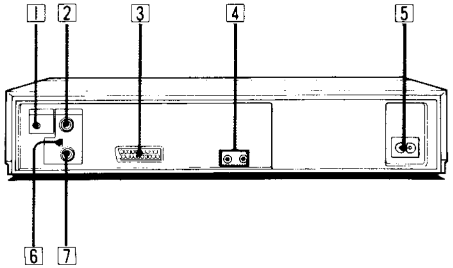
28 PROGRAM +/– buttons
Press to select the programme positions.

29 TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ buttons (page 28)
Press to clear streaks if they appear on the screen in the normal and slow playback. (Manual tracking adjustment)
Press to reduce picture shaking in the still mode. (Still adjustment)

30 TRACKING AUTO/MANUAL button (page 28)
Press to reactivate the automatic tracking function after manual tracking adjustment.

31 ● REC (record) button (page 35)

Identifying the Operational Parts



Rear

1 **RF CHANNEL screw (30 to 39)** (page 19)

2 **AERIAL OUT socket** (page 14)

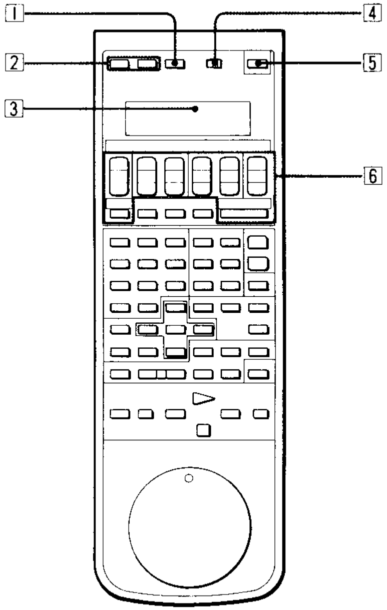
3 ⊖ **EURO-AV (21-pin)** (page 14)

4 **CONTROL S IN/OUT jacks (mini type)** (page 63, 64)
Connect to the CONTROL S output/input jacks of other SONY products for systematic operations such as synchronized editing or remote control operation.

5 **AC INPUT connector**
Connect the supplied AC power cord.

6 **DX/LOCAL switch**
Normally set to DX. If the TV signal is very strong, set it to LOCAL with the supplied screwdriver.

7 **AERIAL IN socket** (page 14)



Remote Commander RMT-V474

- The buttons on the Commander with the same name or mark as those on the unit have the same function.
- The buttons with a red dot can be used to remotely control Sony TVs with the ▣ mark when the TV/VTR remote control selector is set to TV.
  However, the TV/VTR button and/or the -/-- (10's digit) button cannot operate certain Sony's TVs.

1 **TIMER REC (ON/OFF) button**

2 **TIMER REC CHECK/CLEAR buttons** (page 47)
Press to check, correct, or clear the timer settings.

3 **Liquid-crystal display**

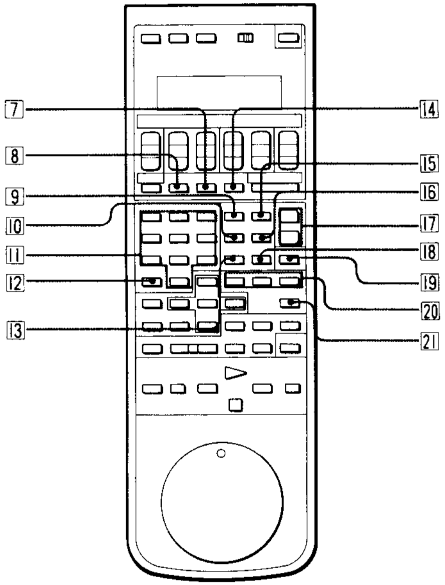
4 **TV / VTR remote control selector** (page 16)
Set to VTR to control this VTR and set to TV to control the TV.

5 ⏻ **(on/standby) button**
To turn on the TV from the standby mode, press one of the programme position number buttons.

6 **Timer recording/clock set buttons** (page 17, 43)
❶ TIMER SET
❷ DAY
❸ TURN ON time
❹ TURN OFF time
❺ PROG (programme position) +/- *
❻ TRANSMIT

* You can use the PROG +/- buttons to select the programme positions during VTR or TV operation as well as in the timer setting procedure.

Identifying the Operational Parts



7 **MEMORY button** (page 50)

8 **CLOCK SET (SET/START) button** (page 17)

9 **REC MODE select button** (page 35, 43)

10 **DATA SCREEN button** (page 32)

11 **Programme position number buttons**
Press to select the programme position directly.

12 **- / - - (10's digit) button**
Press to select a programme number over 9. To select 23, press - / - -, then 2 and 3.

13 **TIMER ON SCREEN button** (page 46)
Press to display the timer settings.

14 **COMMAND MODE button** (page 16)

15 **TV/VTR button** (page 37)

16 **INPUT SELECT button**
Press to select the source to be recorded. The selected input mode indicator will appear in the display window.

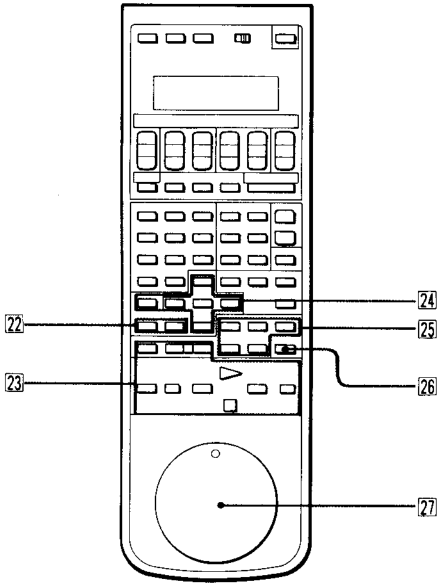
17 **VOL (TV volume) + / - buttons**
Press to control the volume of the TV. Effective only for Sony TVs with the ■ mark.

18 **COUNTER RESET button** (page 40, 41, 68)

19 **INDEX button** (page 56, 57, 58)

20 **P in P (picture in picture) buttons** (page 31, 38)
P in P to display the subsidiary picture.
SHIFT to change the position of the subsidiary picture.
DIGITAL OFF to turn off the subsidiary picture.

21 **EDIT MONITOR button** (page 65, 67)



22 **INDEX MARK and ERASE buttons** (page 55, 58)

23 **Tape transport buttons** (page 27, 29)
ıı PAUSE
● REC (recording)
▷ PLAY
◀◀◀ HIGH SPEED REWIND
⊲⊲/⊳⊳ SEARCH (reverse/forward)
◀◀ REW (rewind)
▶▶ FF (fast-forward)
■ STOP

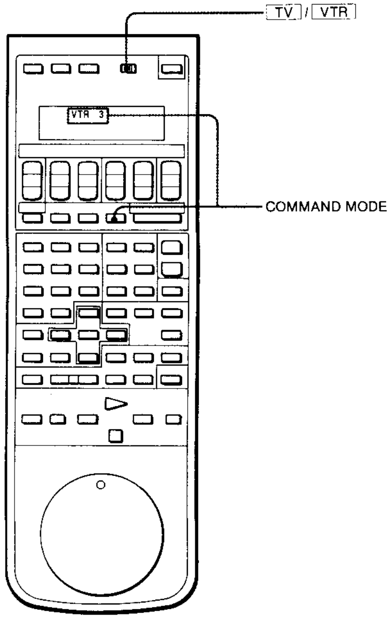
24 **Menu operation buttons**
Press MENU to display or erase the main MENU. Press EXECUTE to store the selected parameters. Press ▲/▼/◀/▶ to move the cursor.

25 **Playback direction set, frame-by-frame, still and SLOW + / - buttons** (page 29)
Press ▶◀ for a still picture.
Press < ◀ıı/ıı▶ > to select the direction for frame-by-frame picture.
Press < ◀ıı/ıı▶ > to select the direction for any playback mode.
Press ı▶ SLOW + / - for slow playback between 1/5 to 1/30 times normal speed. Press + or - to change the playback speed.

26 **AUDIO DUB button** (page 68)

27 **SWING SHUTTLE dial** (page 30)
Turn and hold it at the position where the desired playback speed is obtained. You can select slow (1/5), normal (1), double (x 2) or continuous scan speed (⊲⊲ or ⊳⊳) from any playback mode. Turn the dial clockwise for forward playback, or counterclockwise for reverse playback. When the dial is released, it will return to the still picture position automatically. To resume normal playback, press ▷ PLAY.

Remote Control Operation


TV / VTR
VTR 3
COMMAND MODE

Command Mode Setting

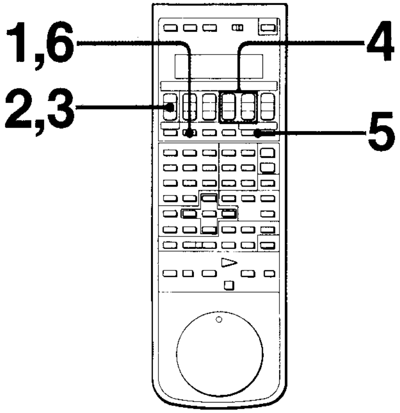
Set the COMMAND MODE 1/2/3 selector on the unit to the same number displayed in the LCD display. To change the setting on the Commander, press COMMAND MODE repeatedly. Then, set the TV / VTR remote control selector to VTR.

Remotely Controlling Other Sony Equipment

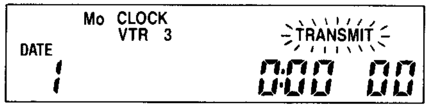
- **Controlling another VTR equipped with a command mode selector**
  Set different command modes for this VTR (VTR 3, for instance) and the other VTR (VTR 1). Select VTR 1 on the Commander to control the other VTR and VTR 3 to control this VTR.

- **Controlling equipment without a command mode selector**
  Change the setting on the Commander as follows to control each type of VTR.
  VTR 1: Sony Betamax infrared remote control VTRs (Some Betamax VTRs may not be controlled in this mode.)
  VTR 2: Sony 8 mm format VTRs
  VTR 3: Sony VHS format VTRs

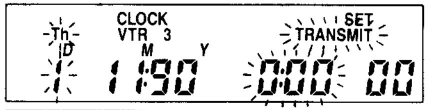
Date and Clock Setting



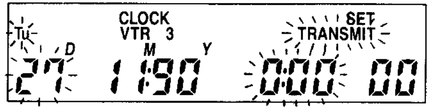
1


Mo CLOCK
VTR 3
TRANSMIT
DATE
1
0:00 00

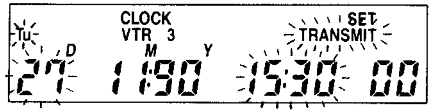
2


Th
D
CLOCK
VTR 3
M Y
SET
TRANSMIT
1 1·90
0:00 00

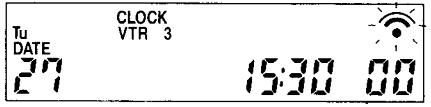
3


Tu
D
CLOCK
VTR 3
M Y
SET
TRANSMIT
27 1 1·90
0:00 00

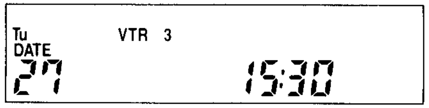
4


Tu
D
CLOCK
VTR 3
M Y
SET
TRANSMIT
27 1 1·90
15:30 00

5


Tu
DATE
CLOCK
VTR 3
27
15:30 00

6


Tu
DATE
VTR 3
27
15:30

Before You Begin

The time and date between the years 1990 and 2005 can be set with the Commander.

Operation

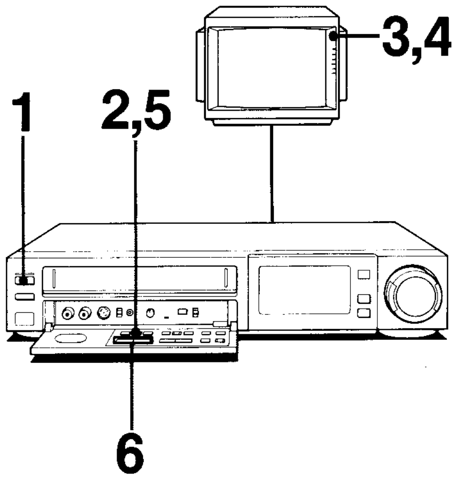
Example: To set to 15:30, Tuesday, November 27, 1990.

1. **Press CLOCK SET.**
2. **Keep pressing the D (date) button until 11 M 90 Y is displayed.**
   The date will be incremented slowly up to 30 days ahead and then the month will be incremented.
3. **Press the + side or – side of the D (date) button until 27 D is displayed.**
   The day of the week appears automatically.
4. **Press the H (hour) and M (minute) buttons under TURN OFF to set the current time.**
5. **Point the Commander at the VTR and press TRANSMIT.**
   A beep sound confirms that the date and clock setting is registered in the VTR as well.
6. **Check the display window on the unit and press CLOCK SET.**

When 0:00 is blinking on the unit
Any time power is interrupted for more than an hour, you will see 0:00 blinking when power is restored. You will have to re-set the date and clock again.

When a short beep sounds repeatedly
The VTR is in the timer recording or quick timer recording modes or standby mode for timer recording and the setting cannot be transmitted.

Adjusting the TV



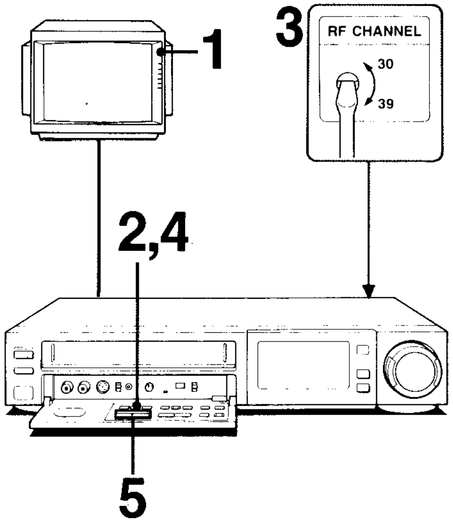
Before You Begin

If you have connected your VTR and TV using only the aerial sockets, one of the television programme positions must be adjusted to receive the VTR's playback signal. If TV-VTR connection is made via the EURO-AV, skip this step.

Operation

1. **Make connections referring to "Connections" and press ON/STANDBY.**
2. **Press INPUT SELECT to light LINE L2 in the display window.**
   Do not connect any equipment to the LINE IN 2 VIDEO jack.
3. **Turn on the TV and select a programme position that is not used to receive a TV station.**
4. **Tune the TV so that a blue screen with tape counter and tape speed indication is clearly displayed on the TV screen.**
5. **Press INPUT SELECT to light TUNER in the display window.**
6. **Press PROGRAM +/– on the VTR and check that the screen changes to a different programme.**

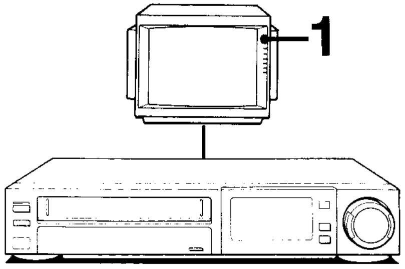
Now your TV is tuned to receive the VTR's playback picture. Whenever playing back a tape, select the programme position you chose in step 3.
If you are not sure how to tune your TV, refer to the TV's instruction manual or consult your dealer.

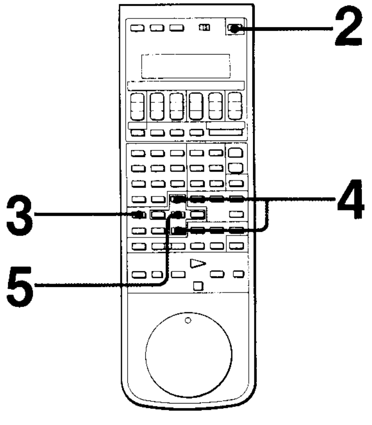


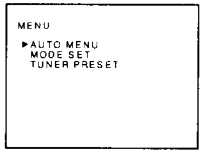
When the Playback Picture is not Free of Disturbance

1. **Select a programme position on the TV between UHF channels 30 and 39, so that the TV shows no picture and a steady rustling sound or no sound is heard.**
2. **Press INPUT SELECT to light LINE L2 in the display window.**
   Do not connect any equipment to the LINE IN 2 VIDEO jack.
3. **Turn the RF CHANNEL screw with the supplied screwdriver so that a blue screen with tape counter and tape speed indication is clearly displayed on the TV screen.**
4. **Press INPUT SELECT to light TUNER in the display window.**
5. **Press PROGRAM +/– on the VTR and check that the screen changes to a different programme.**

About the MENU Display







MENU
▸AUTO MENU
MODE SET
TUNER PRESET

This VTR is equipped with a menu display function. Menu display enables you to perform certain operations which are displayed on the TV or the monitor.

First display the main MENU, and select the item to be operated or preset.

How to Display the main MENU

■Before you begin

Check the connections between the VTR and the TV.

■Operation

1 Turn on the TV.
Set to the programme position for the VTR if VTR-TV connection is made via the aerial sockets. Select VTR input if VTR-TV connection is made via the EURO-AV.

2 Press ⏻.

3 Press MENU.
The main MENU will appear on the screen.

4 Move cursor to the desired menu by ▲ or ▼.

5 Press EXECUTE.
The selected menu will appear on the screen.

To erase the main MENU display
Press MENU again.

To display other menu displays
1 Press MENU to erase the present display.
2 Press MENU again to display main MENU.
3 Move cursor to the desired menu.
4 Press EXECUTE.

Details of Each Menu

Here is a list of the menus in the main MENU. For details, refer to the sections indicated.

■AUTO MENU

Use to select an automatic tape operation. See "Assigning a Desired Operation Mode" (page 33).

■MODE SET

Use to select the following mode settings:

TIMER REC-REW ON/OFF
(See "Timer Activated recording" on page 48)

BUZZER ON/OFF
(See "Timer Activated Recording" on page 42)

DIMMER ON/OFF
Select ON to dim out the indications in the display window.

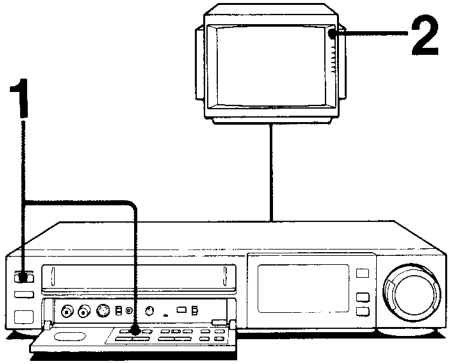
BACK COLOUR BL/GR/PK
Select your favourite back colour of the on-screen display from BL (blue), GR (green) and PK (pink).
Back colour is set to BL at the time of shipment.

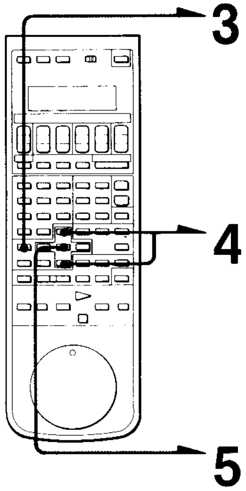
■TUNER PRESET

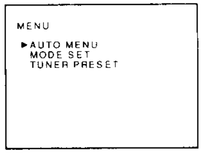
Use to preset the active channels in your area. See "Presetting the Active Channels" (page 22).

Note
The position of the cursor is retained as long as the power cord is connected.

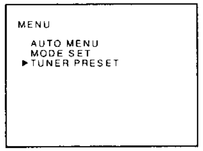
Presetting the Active Channels



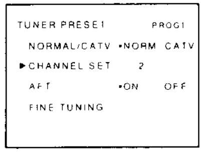




```
MENU
▶AUTO MENU
 MODE SET
 TUNER PRESET
```



```
MENU
 AUTO MENU
 MODE SET
▶TUNER PRESET
```



```
TUNER PRESET           PROG1
 NORMAL/CATV   •NORM  CATV
▶CHANNEL SET     2
 AFT           •ON    OFF
 FINE TUNING
```

Before You Begin

- This VTR is capable of receiving VHF channels E2-E12, UHF channels E21-E69, and cable TV channels S1-S41 and S01-S03.
- The receivable channels are governed by the TV broadcasting system in your area.
- Up to 60 channels can be allocated to any desired programme position.

To Call Up the TUNER PRESET Menu

1 **Turn on the VTR and press INPUT SELECT to light the TUNER indicator and the programme position number in the display window.**

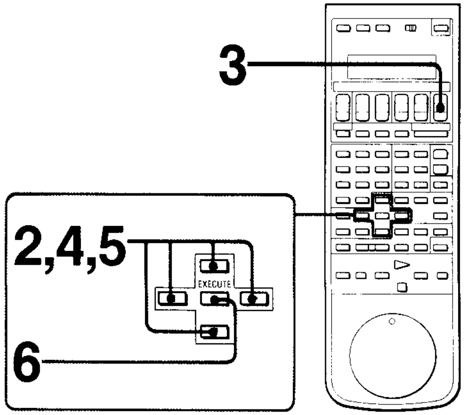
2 **Turn on the TV.**
Set to the programme position for the VTR if VTR-TV connection is made via the aerial sockets. Select VTR input if VTR-TV connection is made via the EURO-AV.

3 **Press MENU with the VTR in the stop mode.**
The main MENU appears.

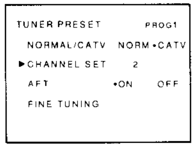
4 **Move cursor with ▲ or ▼ to TUNER PRESET.**

5 **Press EXECUTE.**
The TUNER PRESET menu appears.

Note for the users of SLV-474UB
The TUNER PRESET menu of the SLV-474UB does not have the NORMAL/CATV selection as illustrated.

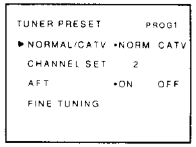


1



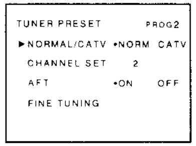
```
TUNER PRESET           PROG1
 NORMAL/CATV   NORM •CATV
▶CHANNEL SET     2
 AFT           •ON    OFF
 FINE TUNING
```

2



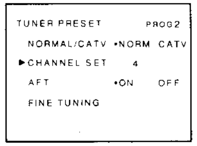
```
TUNER PRESET           PROG1
▶NORMAL/CATV   •NORM  CATV
 CHANNEL SET     2
 AFT           •ON    OFF
 FINE TUNING
```

3



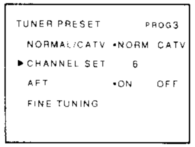
```
TUNER PRESET           PROG2
▶NORMAL/CATV   •NORM  CATV
 CHANNEL SET     2
 AFT           •ON    OFF
 FINE TUNING
```

4



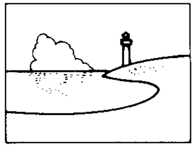
```
TUNER PRESET           PROG2
 NORMAL/CATV   •NORM  CATV
▶CHANNEL SET     4
 AFT           •ON    OFF
 FINE TUNING
```

5



```
TUNER PRESET           PROG3
 NORMAL/CATV   •NORM  CATV
▶CHANNEL SET     6
 AFT           •ON    OFF
 FINE TUNING
```

6



Tuning a Desired Channel

1 **Call up the TUNER PRESET menu.**

2 **Move cursor to NORMAL/CATV with ▲ and select NORM with ◀ or ▶. (For SLV-474UB, skip this step.)**
To tune-in CATV channels first, select CATV.

3 **Select the desired programme position by pressing PROG +/– on the Commander or PROGRAM +/– on the unit.**

4 **Move cursor to CHANNEL SET with ▲ or ▼ and press ◀ or ▶.**
The channel number automatically increases with ▶ and decreases with ◀. The number stops changing when the first channel received in your area is detected and the screen returns to the blue background 5 seconds after.

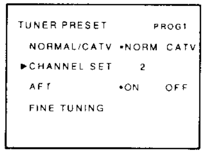
5 **To allocate a channel to the next programme position, repeat steps 2 to 4.**

6 **Press EXECUTE to store the allocated channels and return to the original screen.**

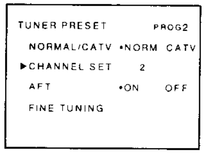
Channel scanning on your VTR
- When ▶ is pressed in steps 4 and 5, the channels are scanned in the following order. When ◀ is pressed the scanning order is reversed.
  VHF (E2-E12) → UHF (E21-E69) → CATV (S1-S20) → HYPER BAND (S21-S41) → CATV (S01-S03).
- The SLV-474UB only scans UHF channels B21 to B68.
- In Italy, channel numbers 13 to 20 correspond to channels A to H.

Presetting the Active Channels

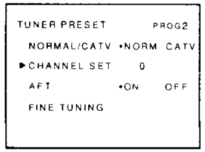
1


TUNER PRESET PROG1
NORMAL/CATV •NORM CATV
►CHANNEL SET 2
AFT •ON OFF
FINE TUNING

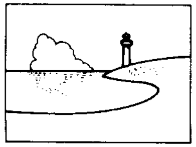
2


TUNER PRESET PROG2
NORMAL/CATV •NORM CATV
►CHANNEL SET 2
AFT •ON OFF
FINE TUNING

3


TUNER PRESET PROG2
NORMAL/CATV •NORM CATV
►CHANNEL SET 0
AFT •ON OFF
FINE TUNING

5



Erasing Unwanted Programme Positions

The VTR can be preset so that only the desired programme positions will appear when you press PROG +/– or PROGRAM +/–.

1 Call up the TUNER PRESET menu.

2 Press PROG +/– on the Commander or PROGRAM +/– on the unit to call up the unused programme position.

3 Press 0 twice or keep pressing ◄ or ► until 0 is displayed.

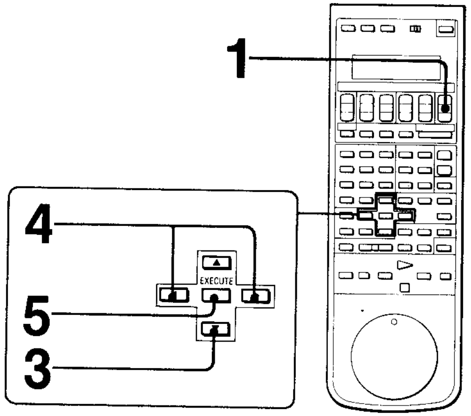
4 Repeat steps 2 and 3 to erase other programme positions.

5 Press EXECUTE.

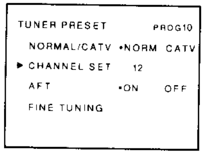
■To enter the erased programme positions again
Follow the operations in "Tuning a Desired Channel."

To Allocate the Channels Directly

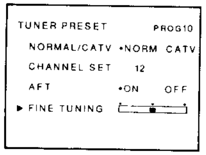
After step **3** in "Tuning a Desired Channel," move cursor to CHANNEL SET.
Enter the desired programme numbers using the programme position number buttons. To enter one's digits, press 0 and then the desired number. To enter two digit numbers, press the ten's digit number and then the one's digit number.



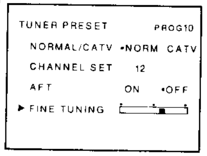
2


TUNER PRESET PROG10
NORMAL/CATV •NORM CATV
► CHANNEL SET 12
AFT •ON OFF
FINE TUNING

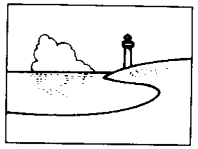
3


TUNER PRESET PROG10
NORMAL/CATV •NORM CATV
CHANNEL SET 12
AFT •ON OFF
► FINE TUNING

4


TUNER PRESET PROG10
NORMAL/CATV •NORM CATV
CHANNEL SET 12
AFT ON •OFF
► FINE TUNING

5



Manually Fine-tuning a Weak Station

Normally the AFT (Automatic Fine Tuning) function fine-tunes the picture with the AFT in the TUNER PRESET menu set to ON. (The AFT indicator lights in the display window.) However, when the programme received on the VTR is distorted due to signal interference, manual fine tuning may solve the problem.

1 Select the distorted programme position by pressing PROG +/– on the Commander or PROGRAM +/– on the unit.

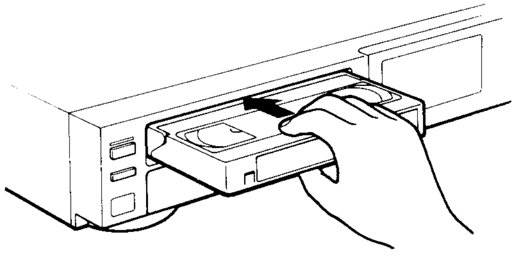
2 Call up the TUNER PRESET menu.

3 Move cursor to FINE TUNING.
The fine tuning meter appears.

4 Press ◄ or ► to obtain the best picture.
When ◄ or ► is pressed, the dot will move to AFT OFF automatically and the AFT indicator in the display window will be turned off.

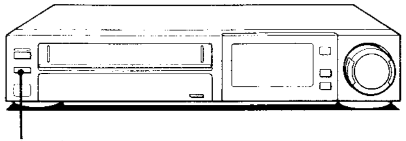
5 Press EXECUTE to store that position and return to the original screen.

Handling Video Cassettes



Cassette Insertion

Insert the cassette by slowly pressing its center with the arrow indication facing upwards. When a cassette is inserted, the power will be turned on automatically. If the inserted cassette has its safety tab removed, playback starts automatically.

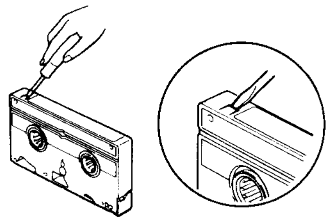


Cassette Ejection

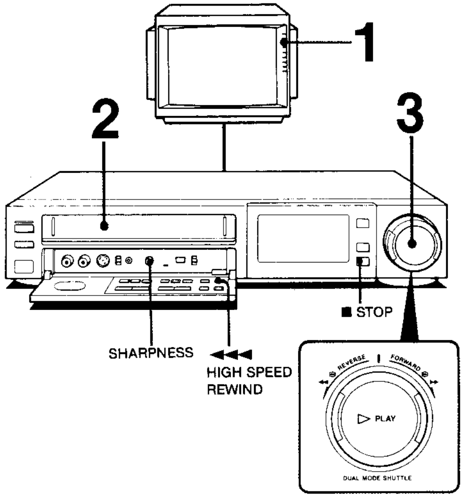
Press ⏏ EJECT on the unit. When the VTR is turned off, pressing the ⏏ EJECT button will turn on the unit, eject the cassette, and turn off the VTR again. Note that ⏏ EJECT will not function during recording.

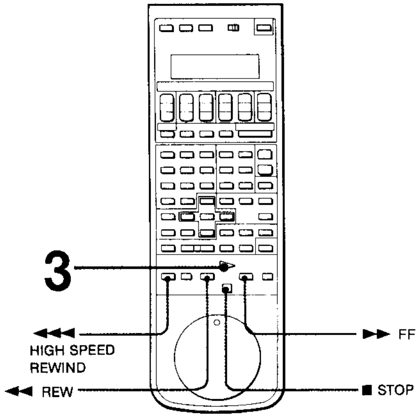
Erase Protection

When recording is made on a pre-recorded tape, the previous recording will be erased. To avoid this, remove the safety tab with a screwdriver or a similar tool. The cassette will then be ejected when recording is attempted. To record again on a cassette that has no tab, simply cover the safety tab hole with a piece of plastic tape.



Playback





Playing a Tape

1 Turn on the TV and select the programme position for the VTR.
If VTR-TV connection is made via EURO-AV, select the input for the VTR.

2 Insert a cassette.
The VTR will be turned on. If your cassette has its safety tab removed, playback starts automatically.

3 Press ▷ PLAY.
Playback starts.
The VTR automatically rewinds the tape when it reaches the end.

To stop playback
Press ■ STOP.

To advance the tape rapidly
Turn the DUAL MODE SHUTTLE ring clockwise (►►), or press ►► FF on the Commander during stop mode.

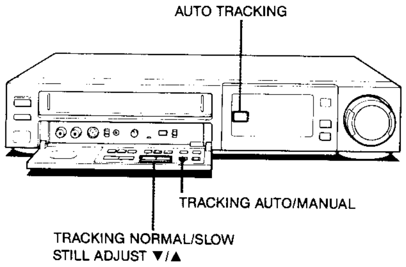
To rewind the tape
Turn the DUAL MODE SHUTTLE ring counterclockwise (◄◄), or press ◄◄ REW on the Commander during stop mode.

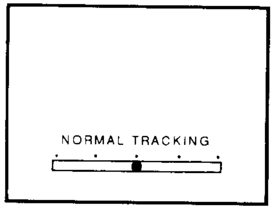
To rewind the tape at high speed
Press ◄◄◄ HIGH SPEED REWIND.

To get a sharper picture
Turn the SHARPNESS control toward SHARP.

To get a softer picture
Turn the SHARPNESS control toward SOFT.

When the tape is played back to the end
The tape will be automatically rewound to the beginning (auto rewind). The power will remain on.





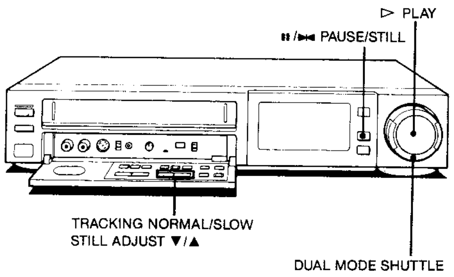
Picture Adjustments

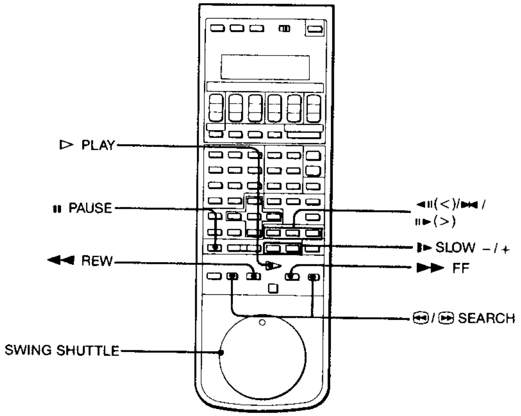
■Auto tracking function
The tracking condition is automatically adjusted on this VTR. The AUTO TRACKING indicator blinks while the VTR is searching for the best tracking condition and lights when maximum playback picture is obtained. The automatic tracking control is activated in the following conditions:
- — when the cassette is inserted and played back.
- — when the recording mode on the playback tape is switched between SP and LP.
- — when the picture is distorted by scratches etc. on the tape.
- — when the AUTO TRACKING indicator is turned on by pressing TRACKING AUTO/MANUAL after the picture is adjusted manually. (See below.)

■Manual adjustment during normal playback
If streaks or snow appear, adjust the picture using the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.

Press either ▼ or ▲ to obtain the best possible picture.
The tracking meter will appear on the TV screen and the AUTO TRACKING indicator will be turned off.

Notes on Automatic Tracking
- •When the manual adjustment proves unsatisfactory, press both of the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲. The tracking condition will return to the center position.
- •Tracking adjustment may not be possible when the recording condition of the tape is very poor.





Various Playback Modes

■To obtain a still picture
During playback mode press ❚❚/▶◀ PAUSE/STILL on the unit or ❚❚ PAUSE or ▶◀ on the Commander. To resume normal playback, press ▷ PLAY, ❚❚/▶◀ PAUSE/STILL, or ❚❚ PAUSE. When the pause mode lasts for more than 5 minutes, the unit will re-enter the playback mode automatically.

■To search for a particular scene — Picture search
During playback mode, press ◀◀ REW or ▶▶ FF.
While the button is pressed, a high speed picture without sound will appear on the TV screen. When the button is released, the unit will return to the previous mode.

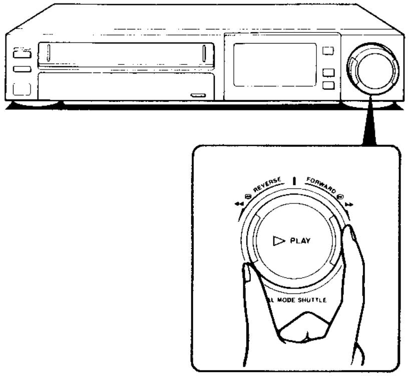
■To watch the picture during fast-forward or rewind mode — Locked picture search
During the playback mode, press ⏩ SEARCH or ⏪ SEARCH on the Commander. A high speed picture in forward or reverse will appear on the screen even when the button is released. To resume normal playback, press ▷ PLAY.

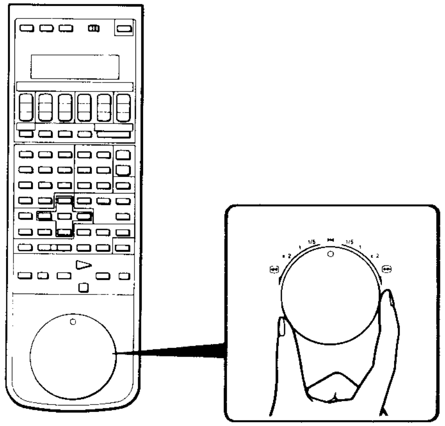
■To watch slow motion playback
During plabyack or still mode, press ❚▶ SLOW on the Commander. Change the slow motion speed with the + or − button. Press + to increase the playback speed, and − to decrease the playback speed.

■To see the picture momentarily while the unit is in the fast-forward or rewind mode without picture on the TV screen
During fast-forward, turn the DUAL MODE SHUTTLE ring clockwise (▶▶) or press ▶▶ FF on the Commander. During rewind, turn the DUAL MODE SHUTTLE ring counterclockwise (◀◀) or press ◀◀ REW on the Commander. The high speed playback picture can be seen as long as the ring is held in that position, or the button is pressed. Release the ring or button to return to the previous mode.

■To watch a frame-by-frame picture
During still mode, press ❚❚▶ to advance the picture one frame. Press ◀❚❚ to reverse the picture one frame. Each press of ◀❚❚/❚❚▶ will move the picture one frame. Press ▷ PLAY to resume normal playback.

Playback





■To watch reverse direction playback, and slow picture
During forward playback of the desired mode, press < on the Commander.
Press ▷ PLAY or > to resume forward playback.

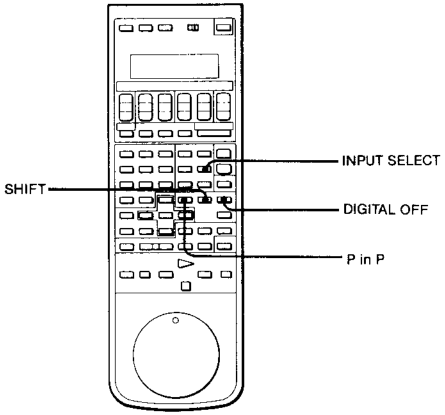
To eliminate streaks or noise bands during slow motion play
Adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ inside the front panel. The picture can be adjusted easily in faster speed playback.

To eliminate the bands on the top or bottom of the screen in still mode
Change to the slow motion play mode and adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.

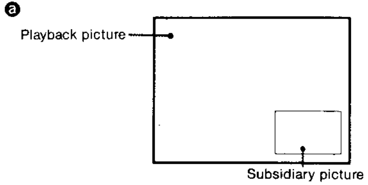
To eliminate picture shaking during still mode
Adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ inside the front panel.

Note on picture search
The picture may turn to a monochrome picture during picture search when playing back tapes recorded in LP mode depending upon the condition of the connected TV.

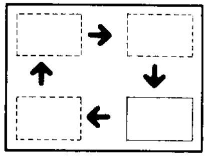
■To enjoy various playback modes by the DUAL MODE SHUTTLE ring or the SWING SHUTTLE dial
Various playback modes as illustrated can be selected with DUAL MODE SHUTTLE ring on the unit or the SWING SHUTTLE dial on the Commander from any playback mode.
The same speed is available in the reverse direction.
Turn the ring or the dial and hold it at the position where the desired playback speed is obtained.
When you release the ring or the dial, the picture will freeze.
To resume normal playback, press ▷ PLAY.



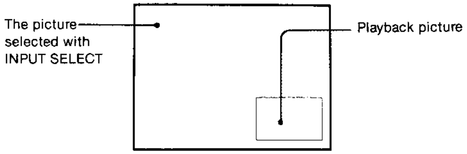
ⓐ



ⓑ



ⓒ



Inserting a Small Picture into the Playback Picture (P in P)

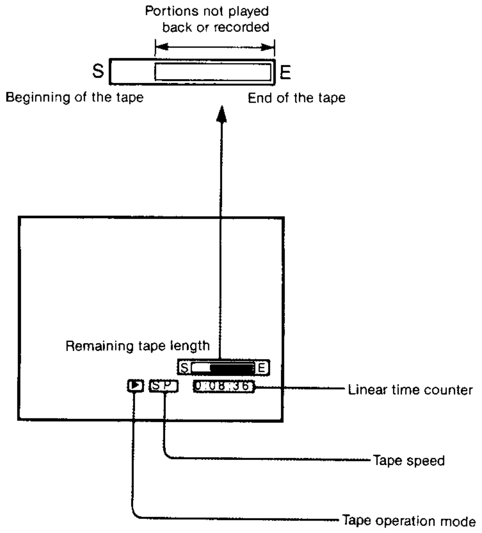
Press P in P during playback. ⓐ
The subsidiary picture selected with INPUT SELECT will appear on the TV screen.
•If TUNER mode is selected with INPUT SELECT, you can watch the TV picture on the subsidiary screen.

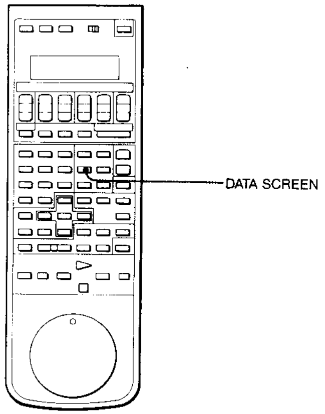
■Changing the position of the subsidiary picture ⓑ
Press SHIFT repeatedly until the desired position is reached.

■Inverting the subsidiary picture and the main picture ⓒ
Press P in P again.

■Turning off the subsidiary picture
Press DIGITAL OFF.

Note
If no recorded portion is played back at a speed except the normal one, the subsidiary picture will not be displayed.



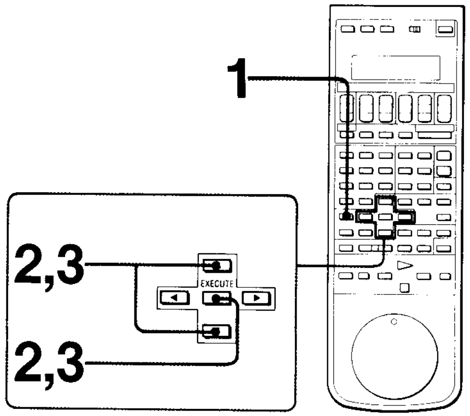


Data Screen

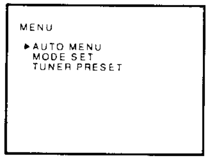
Data screen information illustrated on the left will automatically appear on the screen during playback or recording as a reference. Note, however, that the data screen will not be displayed when the VTR in slow motion or playback pause mode.

■ To erase or display the data screen
Press DATA SCREEN.

Notes on the remaining tape length indicator
- The remaining tape length indicator only shows the approximate amount of tape left.
- The indication may shift vertically during the fast-forward or rewind mode.
- It may not operate properly when a short tape, such as the E-30 and VHS-C type cassette, or when a non-standardized tape is inserted.

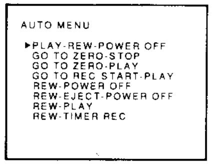


1



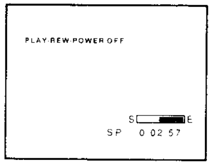
MENU
▸AUTO MENU
MODE SET
TUNER PRESET

2



AUTO MENU
▸PLAY-REW-POWER OFF
GO TO ZERO-STOP
GO TO ZERO-PLAY
GO TO REC START-PLAY
REW-POWER OFF
REW-EJECT-POWER OFF
REW-PLAY
REW-TIMER REC

3



PLAY-REW-POWER OFF
S E
SP 0 02 57

Assigning a Desired Operation Mode

Guided by the AUTO MENU, you can make the VTR enter the desired operational sequence automatically.

1 Press MENU while the VTR is in the stop mode.
The main MENU appears.

2 Move cursor with ▲ or ▼ to AUTO MENU and press EXECUTE.
The AUTO MENU appears.

3 Move cursor with ▲ or ▼ to the desired operational sequence and press EXECUTE.
The selected operation will begin.

The selected operating mode will be superimposed on the TV screen for a few seconds. The AUTO indicator will light in the display window during AUTO MENU operation.

Notes on AUTO MENU operation
AUTO MENU cannot be operated if there is no cassette installed or if the VTR is in modes other than stop mode. A short beep alerts you if the AUTO MENU is not operable.

Note on "GO TO REC START-PLAY"
The recording start point data will be erased from the memory after the following operations and "GO TO REC START-PLAY" will not be operable.
- When COUNTER RESET is pressed.
- When the cassette is ejected and re-inserted.
- When HIGH SPEED REWIND is pressed.

Playback

Auto Menu Modes

■**PLAY — REW — POWER OFF** plays back the tape, rewinds the tape when the end is reached, and turns the power off.

■**GO TO ZERO — STOP** searches for the counter zero point and stops. See page 41.

■**GO TO ZERO — PLAY** searches for the counter zero point and starts playback. See page 41.

■**GO TO REC START — PLAY** searches for the recording start point and starts playback.

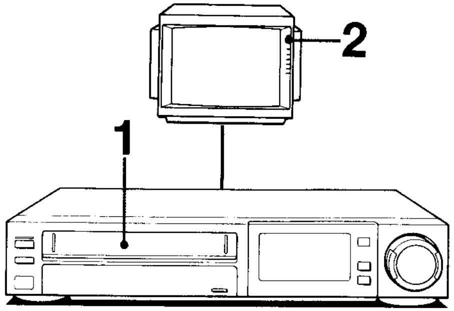
■**REW — POWER OFF** rewinds the tape to the beginning and turns the power off.

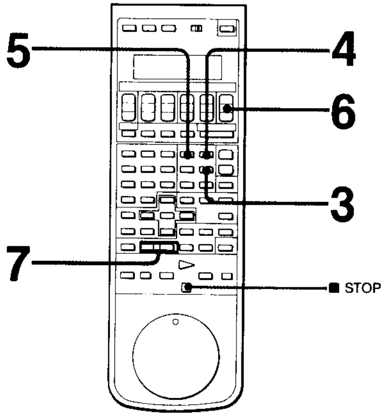
■**REW — EJECT — POWER OFF** rewinds the tape to the beginning, ejects the cassette, and turns off the power.

■**REW — PLAY** rewinds the tape to the beginning and starts playback.

■**REW — TIMER REC** rewinds the tape to the beginning and enters the timer recording standby mode for timer recording when a timer recording is preset. A cassette with its safety tab removed will be ejected.
When the VTR is in the timer recording standby mode, 1) press TIMER REC ON/OFF to cancel the standby mode, 2) turn on the power to the unit, 3) call up the AUTO MENU referring to page 33.

Recording TV Programmes





Before You Begin

- Check that all of the preparations are complete.
- The buttons on the VTR with the same name or mark can be used in the operation below as well.
- Data screen displays will not be recorded on the tape.

Operation

1 **Insert a cassette.**

2 **Turn on the TV.**
Set to the programme position for the VTR playback if VTR-TV connection is made only via the aerial sockets.
Select VTR input if VTR-TV connection is via the EURO-AV.

3 **Press INPUT SELECT so that the TUNER indicator appears in the display window.**

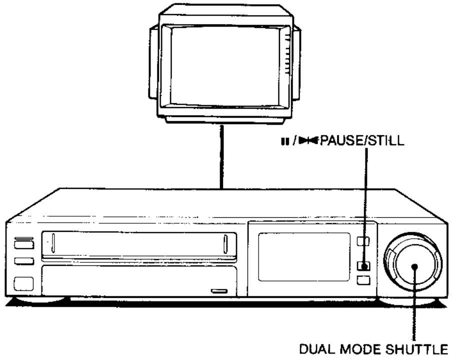
4 **Press TV/VTR so that the VTR indicator lights in the display window.**
(Only when connection is made via EURO-AV.)

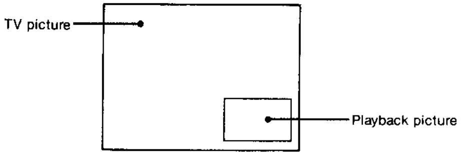
5 **Press REC MODE to select the recording tape speed, SP or LP.**

6 **Select the programme position to be recorded with PROG +/–.**

7 **Press the right button while pressing ● REC.**
Recording will begin. When the tape reaches the end, it will be automatically rewound to the beginning. Pressing the ● REC button on the unit also activates the recording.

To stop recording, press ■ STOP.





To Stop Recording Momentarily at an Unwanted Scene

1 **Press II/▶◀ PAUSE/STILL when an unwanted scene appears.**
Recording is stopped and the VTR enters the recording standby mode.

2 **Press II/▶◀ PAUSE/STILL again to resume recording at the desired point.**

To Cut Out an Unwanted Scene by Recording Over It

1 **Press II/▶◀ PAUSE/STILL during recording to enter the recording standby mode.**

2 **Locate the point where you wish to continue recording using DUAL MODE SHUTTLE on the VTR.**
The unit will enter the P in P mode and the playback picture will be displayed on the subsidiary screen. (For details on the operation, see below.)

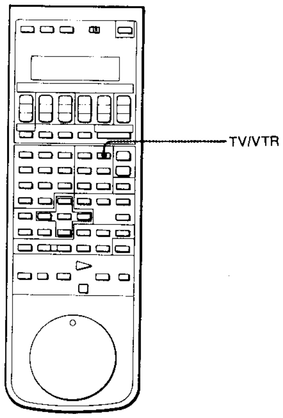
3 **At the desired point, release DUAL MODE SHUTTLE.**

4 **Press II/▶◀ PAUSE/STILL to resume recording.**

■How to use the DUAL MODE SHUTTLE ring

Turn the ring during playback or in the recording pause mode.
The playback speed and the direction can be selected according to the turning angle and direction.
Release the ring to enter the playback pause mode or resume the recording pause mode.

- If the ring is turned in the recording pause mode, the unit enters the P in P mode and the playback picture appears on the subsidiary screen.



Watching a TV Broadcast While Recording Another

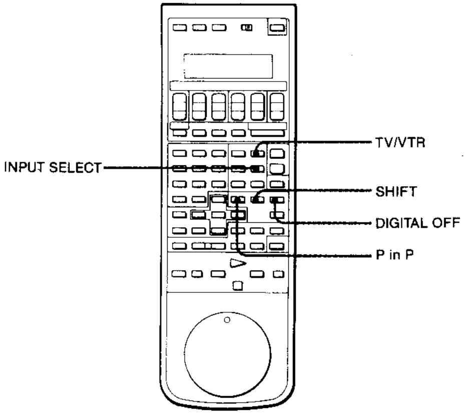
■If VTR-TV connection is made using the EURO-AV

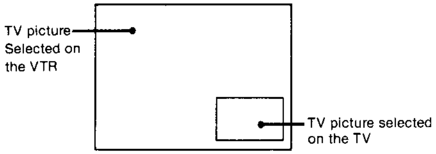
Press TV/VTR to turn off the VTR indicator.
The programme selected on the TV appears on the screen.

■If VTR-TV connection is made using only the aerial sockets

Change the programme position on the TV.

Recording TV Programmes





Watching a TV Broadcast While Watching Another (TV in TV)

You can watch two TV programmes, simultaneously on the screen: One programme selected on the VTR, and the other selected on the TV connected to EURO-AV.

1 Select TUNER mode with INPUT SELECT.

2 Press TV/VTR to turn on the VTR indicator.
The TV programme selected on the VTR appears on the screen.

3 Press P in P.
The programme selected on the TV appears on the subsidiary screen.

■ Changing the position of the subsidiary picture
Press SHIFT repeatedly until the desired position is reached.

■ Turning off the subsidiary picture
Press DIGITAL OFF.

To change the TV programme of the subsidiary picture

Press TV/VTR to turn off the VTR indicator in the display window and select the desired programme on the TV.
By pressing TV/VTR to turn on the VTR indicator, P in P mode is resumed.

When the input mode is changed

If the input mode is changed with INPUT SELECT, the picture on the main screen and the subsidiary screen change as follows.

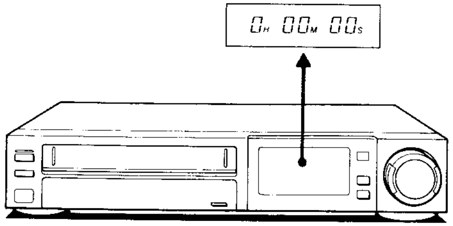
INPUT SELECT	TUNER
Main screen	TV programme selected on the VTR
Subsidiary screen	TV programme selected on the TV

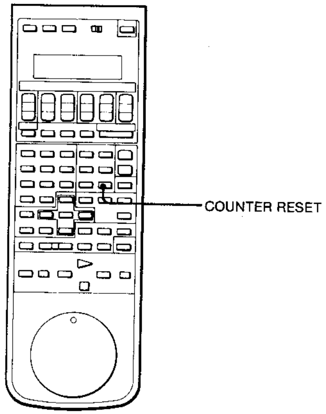
INPUT SELECT	LINE L1 (EURO-AV)
Main screen	TV programme selected on the TV
Subsidiary screen	TV programme selected on the VTR

INPUT SELECT	LINE L2
Main screen	Picture of the equipment connected to LINE IN 2 VIDEO
Subsidiary screen	TV programme selected on the VTR

Notes
- To watch two TV programmes, the tape should be stopped.
- When the TV is not connected to EURO-AV, the subsidiary screen does not appear.

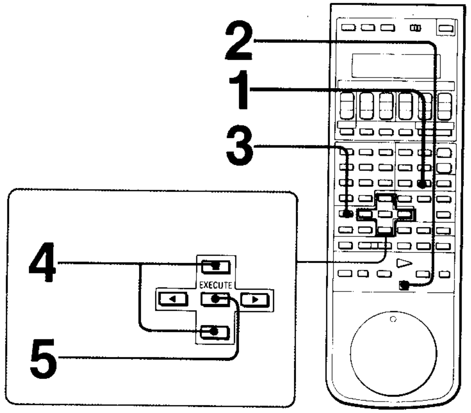
Use of the Tape Counter





Understanding Counter Zero Position

The tape counter on this VTR can be used as a reference when you wish to locate a certain scene after recording or playback. Press COUNTER RESET to set the counter to "0H00M00S" (counter zero position) before operation. The VTR will keep counting the length of tape being played back or recorded. Note, however, that the tape counter will not count the portions of tape with no signals recorded. This VTR automatically resets the counter to zero whenever a cassette is inserted. Two additional features using COUNTER RESET are available on this VTR.



Tape Return

The VTR can search for the counter zero position and stop. This function is useful for locating a particular scene after recording or playback.

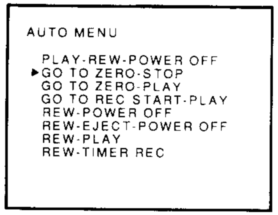
1 **Press COUNTER RESET at the desired scene during recording or playback.**

2 **Press ■ STOP to stop recording or playback.**

3 **Press MENU and select AUTO MENU.** See "Assigning a Desired Operation Mode" for operation.

4 **Move cursor to "GO TO ZERO-STOP."**

5 **Press EXECUTE.**



```
AUTO MENU

  PLAY-REW-POWER OFF
 ▸GO TO ZERO-STOP
  GO TO ZERO-PLAY
  GO TO REC START-PLAY
  REW-POWER OFF
  REW-EJECT-POWER OFF
  REW-PLAY
  REW-TIMER REC
```

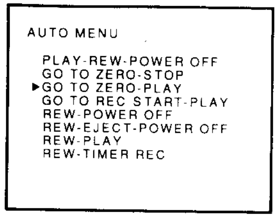
Tape Return Play

The VTR will even search and start playback from the counter zero position after recording or playback.

1 **Repeat steps 1 to 3 in the Tape Return operation.**

2 **Move cursor to "GO TO ZERO-PLAY."**

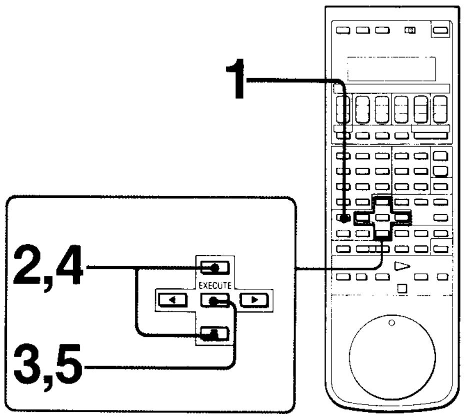
3 **Press EXECUTE.**



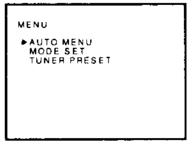
```
AUTO MENU

  PLAY-REW-POWER OFF
  GO TO ZERO-STOP
 ▸GO TO ZERO-PLAY
  GO TO REC START-PLAY
  REW-POWER OFF
  REW-EJECT-POWER OFF
  REW-PLAY
  REW-TIMER REC
```

Timer Activated Recording



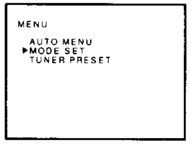
1



```
MENU

▶AUTO MENU
 MODE SET
 TUNER PRESET
```

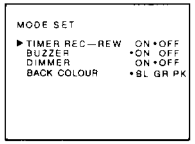
2



```
MENU

 AUTO MENU
▶MODE SET
 TUNER PRESET
```

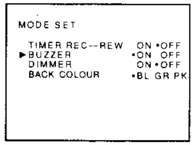
3



```
MODE SET

▶TIMER REC—REW   ON •OFF
 BUZZER         •ON  OFF
 DIMMER          ON •OFF
 BACK COLOUR    •BL GR PK
```

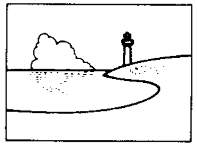
4



```
MODE SET

 TIMER REC--REW  ON •OFF
▶BUZZER         •ON  OFF
 DIMMER          ON •OFF
 BACK COLOUR    •BL GR PK
```

5



Timer Recording on this VTR

Up to eight preselected programmes can be set on this unit, up to one month in advance.

Before You Begin

- •Turn on the TV and adjust it to view the VTR output.
- •Check to see that the clocks on the Commander and the VTR show the present time.
- •To operate the SLV-474VP, read "VPS Function" first.

To Turn On/Off the Warning Buzzer

It is possible to turn on or off the beep sound which this VTR will give whenever an illogical operation command is sent from the Commander.

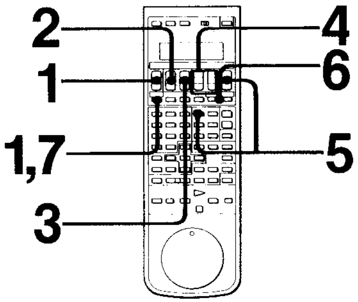
1 **Press MENU in the stop mode.**
The main MENU appears.

2 **Move cursor with ▲ or ▼ to MODE SET.**

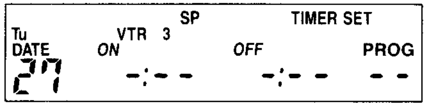
3 **Press EXECUTE.**
The MODE SET menu appears.

4 **Move cursor with ▲ or ▼ to BUZZER.**
Select ON to activate and OFF to deactivate the buzzer by ◀ or ▶.

5 **Press EXECUTE to store the setting and return to the original screen.**

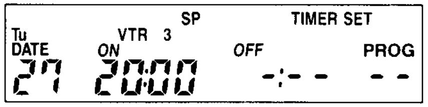


1



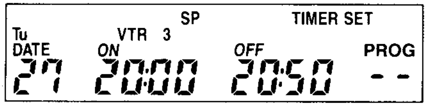
```
            SP       TIMER SET
Tu     VTR 3
DATE   ON        OFF        PROG
27     -:--      -:--        --
```

2,3



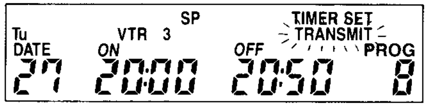
```
            SP       TIMER SET
Tu     VTR 3
DATE   ON        OFF        PROG
27     20:00     -:--        --
```

4



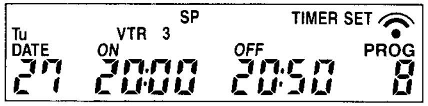
```
            SP       TIMER SET
Tu     VTR 3
DATE   ON        OFF        PROG
27     20:00     20:50       --
```

5



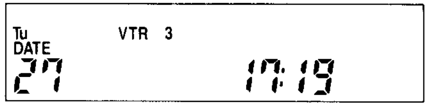
```
            SP       TIMER SET
Tu     VTR 3          TRANSMIT
DATE   ON        OFF        PROG
27     20:00     20:50        8
```

6



```
            SP       TIMER SET
Tu     VTR 3
DATE   ON        OFF        PROG
27     20:00     20:50        8
```

7



```
Tu     VTR 3
DATE
27               17:19
```

Operation

Example: To record a programme broadcast from 20:00 to 20:50 on Tuesday, November 27, 1990 on programme position 8.

1 **Press TIMER SET first, then press D until 27 appears.**
The day of the week, Tu (Tuesday), is automatically set.

2 **Set the recording start hour with TURN ON H.**

3 **Set the recording start minute with TURN ON M.**

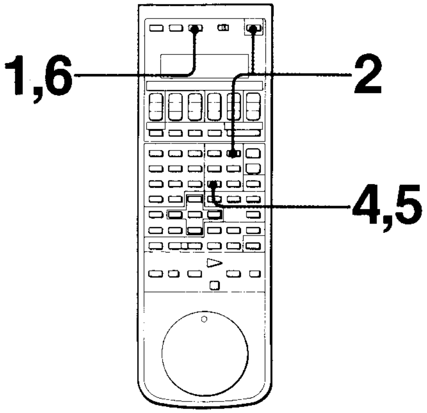
4 **Set the recording end hour and minute with TURN OFF H and M referring to step 2 and 3.**

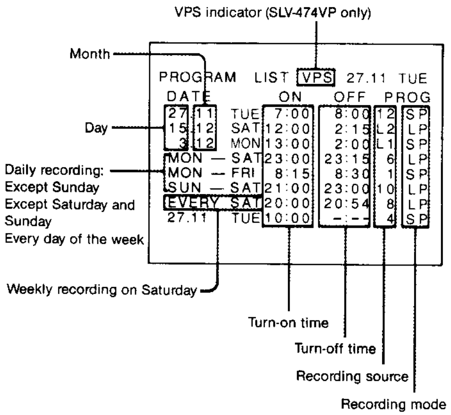
5 **Set the programme position with PROG +/–. To select the recording speed LP, press REC MODE so that the LP indicator appears in the display.**
The TRANSMIT indicator blinks to indicate that all of the items are entered.

6 **Point the Commander to the VTR and press TRANSMIT.**
With a beep sound, the VTR enters the timer recording standby mode. The PROGRAM LIST appears on the screen for a few seconds.

7 **Press TIMER SET so that the present time appears on the LCD display.**
The VTR turns on, starts recording at the selected time, and turns off after recording ends.

Timer Activated Recording




VPS indicator (SLV-474VP only)
Month
Day
Daily recording:
Except Sunday
Except Saturday and Sunday
Every day of the week
Weekly recording on Saturday
Turn-on time
Turn-off time
Recording source
Recording mode

```
PROGRAM  LIST [VPS] 27.11 TUE
 DATE          ON     OFF  PROG
 27.11 TUE   7:00    8:00 12 SP
 15.12 SAT  12:00    2:15 L2 LP
  3.12 MON  13:00    2:00 L1 SP
 MON — SAT  23:00   23:15  6 LP
 MON — FRI   8:15    8:30  1 SP
 SUN — SAT  21:00   23:00 10 LP
 EVERY SAT  20:00   20:54  8 LP
 27.11 TUE  10:00    -:--  4 SP
```

Checking the Timer Settings

The timer settings can be checked while the VTR is in the timer standby mode by displaying the programme list on the screen.

1 **Press TIMER REC (ON/OFF) to turn off the TIMER indicator in the display window.**

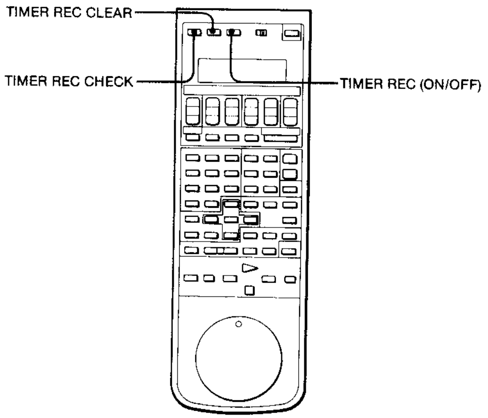
2 **Turn on the VTR and press TV/VTR to light the VTR indicator.**
(Only when connection is made via EURO-AV.)

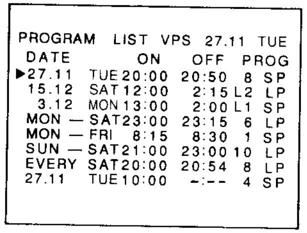
3 **Turn on the TV.**
Set to the programme position for VTR if VTR-TV connection is made via the aerial sockets. Select VTR input on the TV if VTR-TV connection is made via EURO-AV.

4 **Press TIMER ON SCREEN.**
The programme list appears.

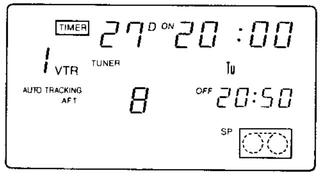
5 **Press TIMER ON SCREEN again to return to the original screen.**

6 **Press TIMER REC (ON/OFF) to return to the timer recording standby mode.**


TIMER REC CLEAR
TIMER REC CHECK
TIMER REC (ON/OFF)



```
PROGRAM  LIST  VPS  27.11  TUE
 DATE          ON     OFF   PROG
▶27.11  TUE 20:00   20:50  8  SP
 15.12  SAT 12:00    2:15 L2  LP
  3.12  MON 13:00    2:00 L1  SP
 MON — SAT 23:00   23:15  6  LP
 MON — FRI   8:15    8:30  1  SP
 SUN — SAT 21:00   23:00 10  LP
 EVERY  SAT 20:00   20:54  8  LP
 27.11  TUE 10:00    -:--  4  SP
```


TIMER
27 D ON 20 :00
1 VTR
TUNER
Tu
AUTO TRACKING
AFT
8
OFF 20:50
SP

Clearing/Correcting the Timer Setting

■Referring to the programme list

1 **Display the programme list referring to steps 1 to 4 in "Checking the Timer Settings."**

2 **Press TIMER REC CHECK to call up and move cursor to the setting you want to correct or clear.**

3 **To clear the setting, press TIMER REC CLEAR.**
If there are other timer settings on the list, press TIMER REC (ON/OFF) return to the timer recording standby mode.
To correct the setting, re-enter all of the items using the Commander. Refer to "Timer Activated Recording — Operation" steps 1 to 6.
The VTR automatically enters the timer recording standby mode.

■Clearing the setting without the programme list

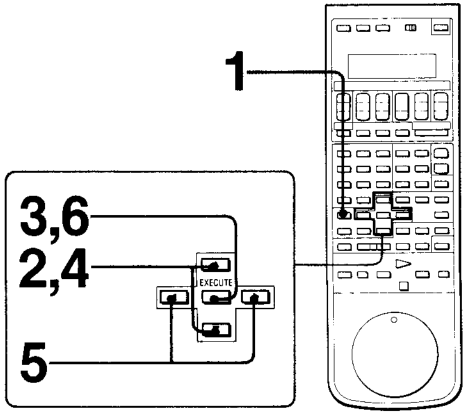
1 **Press TIMER REC (ON/OFF).**

2 **Press TIMER REC CHECK repeatedly until the desired programme appears in the display window.**

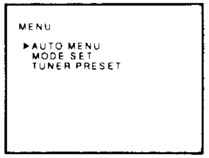
3 **Press TIMER REC CLEAR.**

4 **Press TIMER REC (ON/OFF) to return to the timer recording standby mode if there are other programmes set for timer recording.**

Timer Activated Recording

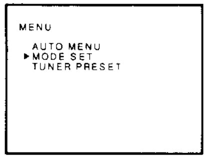


1



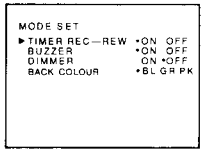
MENU
▶AUTO MENU
MODE SET
TUNER PRESET

2



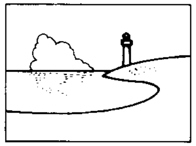
MENU
AUTO MENU
▶MODE SET
TUNER PRESET

3,4,5



MODE SET
▶TIMER REC—REW •ON OFF
BUZZER •ON OFF
DIMMER ON •OFF
BACK COLOUR •BL GR PK

6



To Automatically Rewind the Tape After Timer Recording

1 **Before setting the timer, press MENU.**

2 **Move cursor with ▲ or ▼ to MODE SET in the main menu.**

3 **Press EXECUTE.**

4 **Move cursor with ▲ or ▼ to TIMER REC-REW.**

5 **Press ◀ or ▶ to move the dot to ON.**
To cancel this setting, move the dot to OFF.

6 **Press EXECUTE to store this setting and return to the original screen.**

Using the VTR during Timer Recording Standby Mode

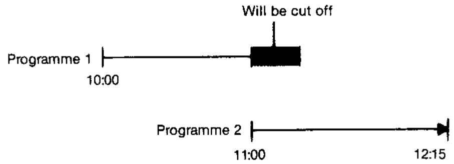
1 **Press TIMER (ON/OFF) to turn off the TIMER indicator.**

2 **Turn on the power of the VTR.**
The VTR is ready to be used.

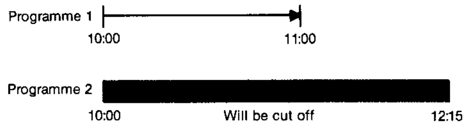
3 **After using the VTR, press TIMER REC (ON/OFF) and light the TIMER indicator to re-enter the timer recording standby mode.**

When the Timer Settings Overlap

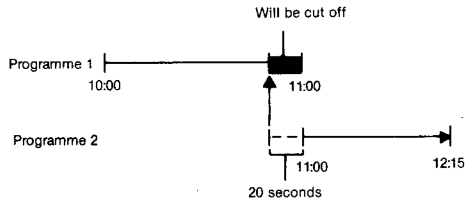
■If the setting of two programmes overlap
The recording of the following programme will begin automatically before the proceeding programme ends.



■If the turn on time of two programmes are the same
The VTR will record the programme with the smaller programme number or listed first on the programme list. The programme with the larger programme number or listed lower in the list will be erased.

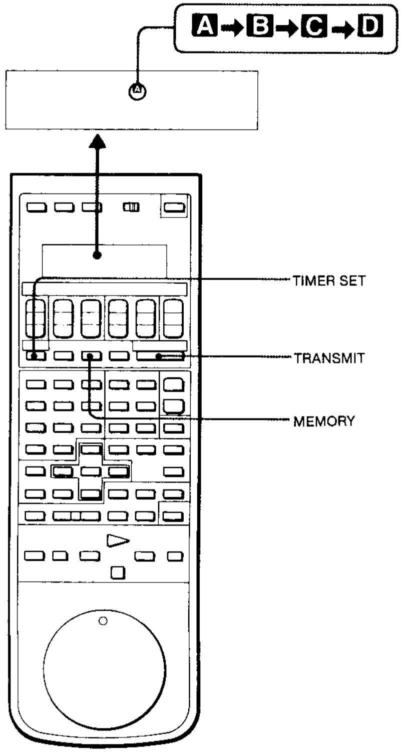


■If the recording end time of programme 1 and the recording start time of programme 2 are the same
The last 20 seconds of programme 1 will not be recorded because the VTR will enter the recording pause mode for programme 2 before programme 1 ends.



Power interruption during timer recording standby/timer recording mode
- •If the power interruption lasts less than an hour, the VTR will enter the recording standby mode or resume timer recording when the power is recovered.
- •If the power interruption exceeds an hour during the recording standby mode, the timer settings will be cleared.
Reset the clock and re-enter the items for timer recording again. If the power interruption occurred during timer recording, the recording will stop and the VTR will be turned off.

Timer Activated Recording



To Store the Frequently Used Timer Settings in the Commander

The items selected for one timer recording programme will be erased from the LCD when TIMER SET is pressed, and cleared from the programme list as well when recording is over.
However, the turn-on/turn-off time and the programme position of up to four programmes can be stored in the Commander to be recalled later. This enables you to quickly access the most frequently used items, especially your favorite weekly programme, since the recording date will automatically be shifted to the next week after the recording is over.

■Storing the parameters

1 Press TIMER SET and MEMORY to indicate MEMORY A.

2 Set all of the items for timer recording referring to "Timer Activated Recording — Operation."

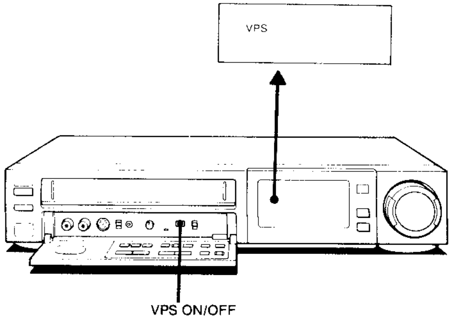
3 Press MEMORY to change the indication to B, C, or D, and repeat step 2 for other programmes.
The items set will be kept in the memory even when TIMER SET is pressed.

■Recalling and re-entering the items

1 Press TIMER SET and MEMORY to call up the desired memory indication (A, B, C, or D).

2 Make whatever changes necessary.

3 Press TRANSMIT.
The VTR enters the timer recording standby mode.



VPS (Video Programme System) Function (SLV-474VP only)

The German broadcasting system transmits VPS signals with the TV programmes which assures that your timer recording will be performed without missing any portion of it regardless of any earliness, time delay, extension, or broadcast interruption which might occur during that programme.

■Operation

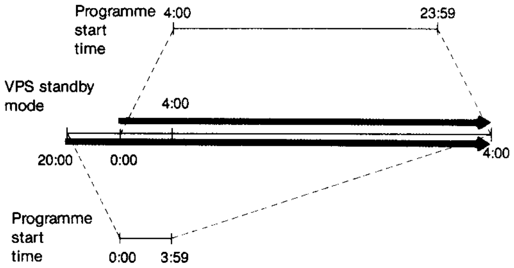
1 Check whether VPS is transmitted with the programme to be recorded.

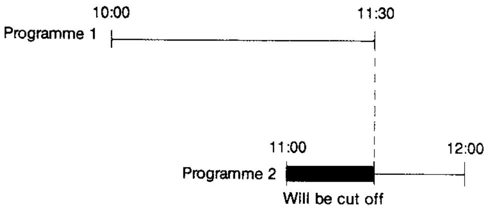
2 Press VPS ON/OFF so that the VPS indicator lights in the display window.

3 Set the timer referring to "Timer Activated Recording — Operation."

Notes
- The VPS button is effective only when the TIMER indicator is turned off.
- If the VPS signal was not received on the VTR because it was too weak or because the station failed to transmit, timer recording will be performed without the VPS function regardless of the VPS indication.
- The recording will stop when the VTR receives a VPS programme interruption code during recording, for example, when an urgent news bulletin was inserted. As soon as the interrupted programme resumes, recording will continue.

Timer Activated Recording





■VPS standby mode

The VTR will enter the standby mode for VPS recording far before the turn on time and remains in the standby mode passed the preset turn on time until the VPS signal is received to prepare for any change in the actual broadcast time.

When the VPS timer recording is set for a programme which is expected to start between 4:00 and 23:59, the VTR will enter the standby mode at 0:00 that day and will keep on waiting for the VPS signal until 4:00 of the next day.

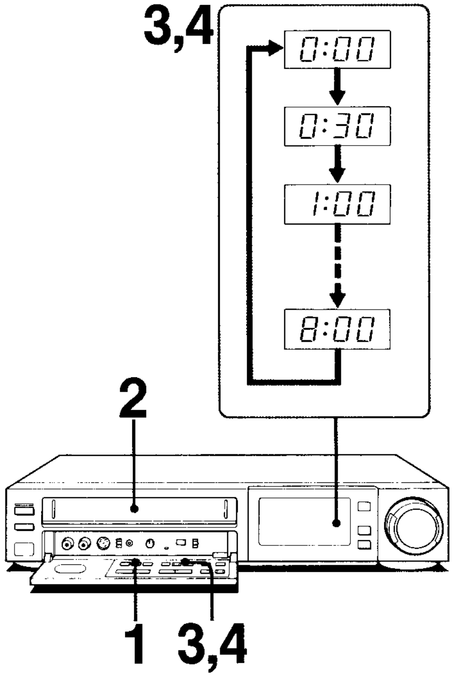
When the VPS timer recording is set for a programme which is expected to start between 0:00 and 3:59, the VTR will enter the standby mode at 20:00 the day before the recording day and will keep on waiting for the VPS signal until 4:00 on the recording day.

Note
When the VTR is in the VPS standby mode, programme position numbers set for timer recording appear in the display window sequentially by few seconds.

■If the actual recording time overlaps with the next timer recording programme

There may be cases when the actual broadcast time of two timer recording programmes overlap owing to the shift made by the VPS signal. In this case, the programme that was broadcast first always has priority. The recording of the second programme will begin only after the first programme is over.

Quick Timer Recording



What is Quick Timer Recording?

The quick timer recording function provides a short cut to enter the timer recording mode or to use the timer to turn off the VTR after recording is over. The timer can be set to operate within 8 hours in units of 30 minutes.

Operation

If you are recording, skip steps 1 to 3.

1 **Press INPUT SELECT so that TUNER indicator is turned on.**

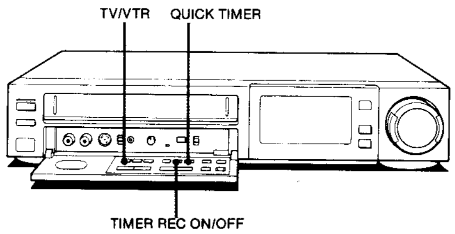
2 **Insert a cassette.**

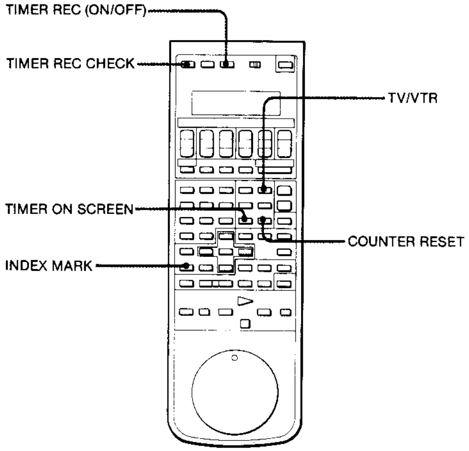
3 **Press QUICK TIMER.**
TIMER indicator lights in the display window. While 0:00 and programme position number is blinking in the display window, select the desired programme number with PROGRAM +/–.
A cassette with its safety tab removed will be ejected.

4 **Press QUICK TIMER again to start recording.**
Press QUICK TIMER again to set the recording duration within 30 seconds from step 3, otherwise the power will be turned off. Each press of QUICK TIMER changes the indication in the display window in units of 30 minutes.

5 **The recording duration will decrease minute by minute until 0:00 when the VTR will be automatically turned off.**

Quick Timer Recording





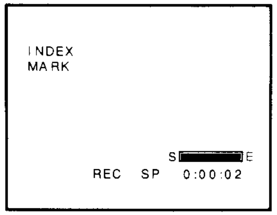
■ Buttons operable during quick timer recording

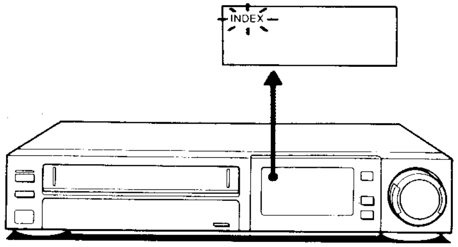
- •**TIMER REC (ON/OFF)** stops quick timer recording.
- •**QUICK TIMER** changes the recording duration.
- •**TIMER ON SCREEN** displays the programme list.
- •**TIMER REC CHECK** changes the programme number in the display window.
- •**COUNTER RESET** resets the counter to zero.
- •**INDEX MARK** marks an index signal.
- •**TV/VTR** switches the screen to another programme received on the TV.

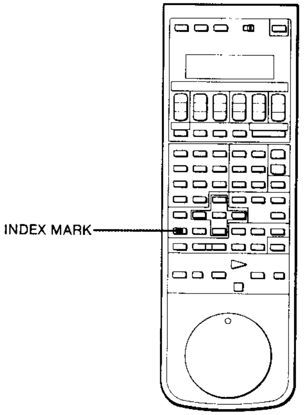
If power interruption occurs during quick timer recording
Recording will stop and the VTR will be turned off. If the power interruption lasted for less than one hour and if the power recovered within the quick timer duration, recording will resume from that instant.

If the unit is in timer recording standby mode
Press TIMER REC (ON/OFF) to turn off the indicator, then follow steps **4** and **5**.

Index Function







Marking Index Signals

The desired position on a tape can be located easily by detecting the index signals. There are two ways in which to mark index signals: automatic and manual. When the index signal is being marked, INDEX flashes in the display window and the INDEX MARK display will appear on the screen.

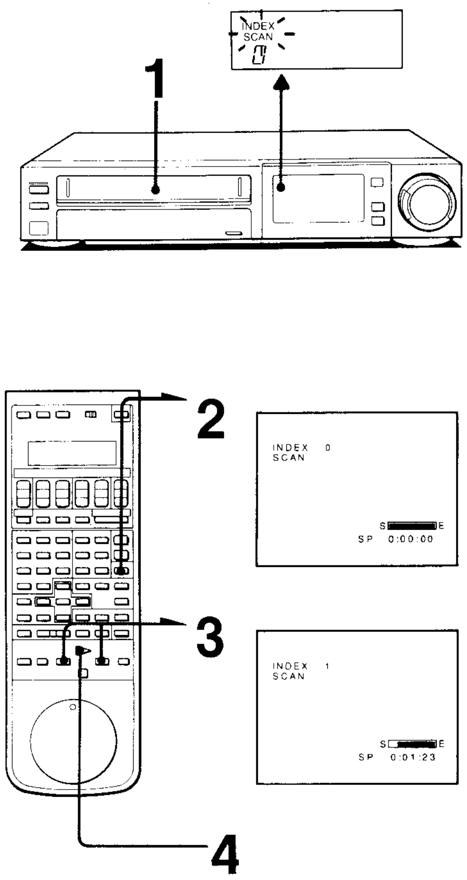
■ Automatic index mark
An index signal is automatically marked on the tape when the VTR starts recording.

■ Manual index mark
Index signals can be marked at desired scenes. Press INDEX MARK to mark an index.

Notes

- •Leave an interval of more than 2-minute interval between two index points so that the VTR can detect each INDEX signal accurately.
- •The recorded sound will not be heard while marking an index signal. But the signal will not be erased.
- •Index signals cannot be marked on a tape whose safety tab is removed or on an unrecorded portion of the tape.

Index Function


1
INDEX
SCAN
0
2
3
4
INDEX 0
SCAN
S E
SP 0:00:00
INDEX 1
SCAN
S E
SP 0:01:23

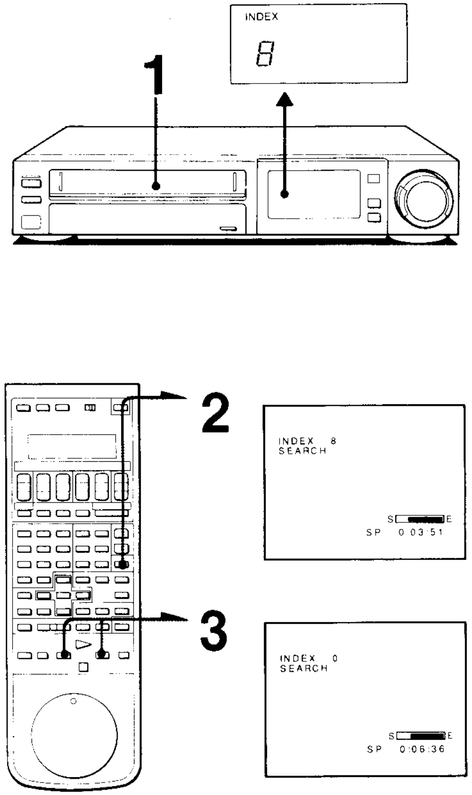
Playing Back from the Index Point — INDEX SCAN

1 **Insert a cassette with index signals.**

2 **Press INDEX once.**
INDEX or SCAN indicator blinks alternately and 0 (zero) lights in the display window.

3 **Press ◀◀ REW to playback from the previous programme.**
Press ▶▶ FF to playback from the programme ahead.
The VTR will advance to the previous or next index signal. Then the VTR will play the tape for approximately 10 seconds, and then move to the next index in the selected direction. The index number changes one by one.

4 **Press ▷ PLAY when the desired index signal is detected.**


INDEX
8
1
2
3
INDEX 8
SEARCH
S E
SP 0 03 51
INDEX 0
SEARCH
S E
SP 0:06:36

Locating an Index — INDEX SEARCH

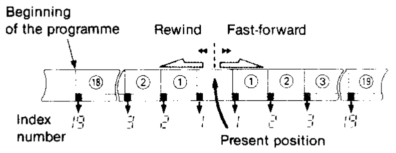
Direct search of the desired index point can be performed by entering the number of how many indexes ahead or behind it is from the current tape position. The VTR counts down how many more indexes should be searched for and displays the sequence in the display window. Up to 19 indexes from the present position can be searched.

1 **Insert a cassette with index signals.**

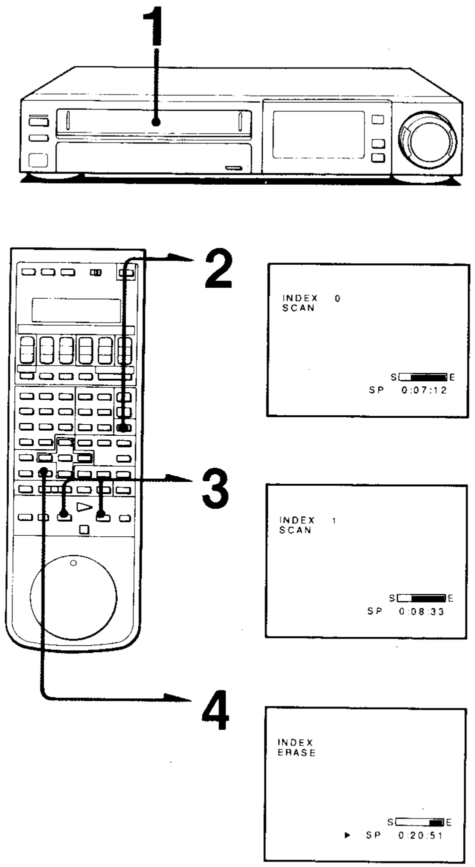
2 **Press INDEX to show how many indexes should be counted to reach the desired scene.**

3 **Press ◀◀ REW if the index is behind or ▶▶ FF if the index is ahead of the current tape position.**
The VTR starts searching and the index number will be counted down to zero.

Playback from the desired point starts.


Beginning
of the programme
Rewind
Fast-forward
⑱
②
①
①
②
③
⑲
Index
number
19
3
2
1
1
2
3
19
Present position

Index Function



Erasing an Index

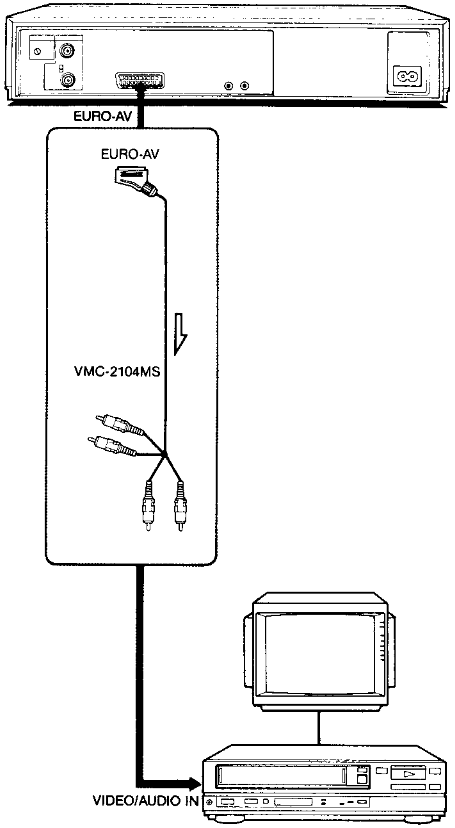
The index marked on the tape can be erased.

1 Insert a cassette with index signals.

2 Press INDEX once.

3 Press ◀◀ REW or ▶▶ FF to search for the index signal.
When the VTR detects an index signal, the VTR will play the tape for approximately 10 seconds from the index. If that is the index you want to erase, go to step **4**. If that is not the index you want to erase, wait until the desired index is searched.

4 Press INDEX ERASE while the VTR is in step 3.
That index signal will be erased. While the index signal is being erased, the recorded sound will not be heard, but it will not be erased. If INDEX ERASE is not pressed within the 10 seconds of playback, the VTR will return to step 3.



Editing onto Another VTR

Using this VTR as a playback VTR and another VTR as a recording VTR.

Before you begin

- Make connections as illustrated. If the other VTR is a stereo type, make connection with the VMC-2106S cable.
- Activate the EDIT function if the other VTR has it.

■ Operation

1 Insert a cassette for recording into the recording VTR.

2 Turn on the power of this VTR and insert a source cassette.

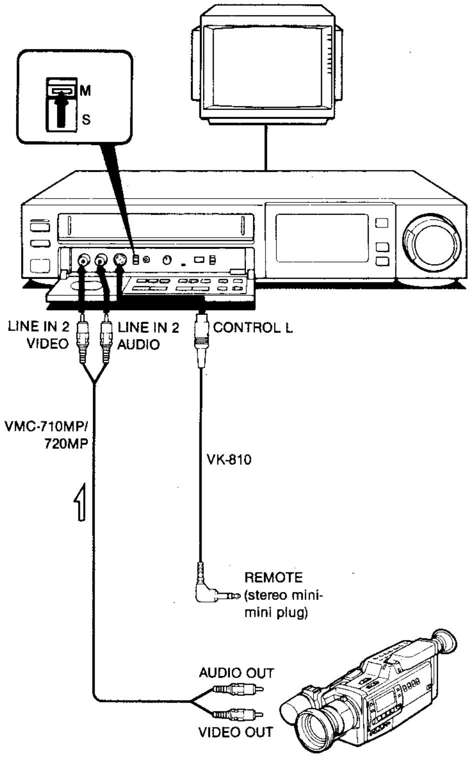
3 Search for the playback start point and set this VTR to the playback pause mode.

4 Search for the recording start point and set the recording VTR to the recording pause mode.

5 Press ❚❚ PAUSE on both VTRs.

Notes
- The cables are not supplied.
- The ⇨ mark indicates the signal flow.

Synchronized Editing — Editing with a VTR Equiped with a Sony Control Terminal


M
S
LINE IN 2 VIDEO
LINE IN 2 AUDIO
CONTROL L
VMC-710MP/720MP
VK-810
REMOTE (stereo mini-mini plug)
AUDIO OUT
VIDEO OUT

Connecting a VTR equipped with a CONTROL L or REMOTE connector

Using this VTR as a recording VTR and another VTR as a playback VTR.

- If the REMOTE connector of the other VTR is a stereo mini-mini plug, use the VK-810 cable. If it is a 5-pin DIN connector, use the VK-800 cable instead of VK-810.
- If the other VTR is a stereo type, make connection with the VMC-2106S cable.
- Activate the EDIT function if the other VTR has it.
  (The EDIT function of this VTR is automatically activated when SYNCHRO EDIT on this unit is pressed.)

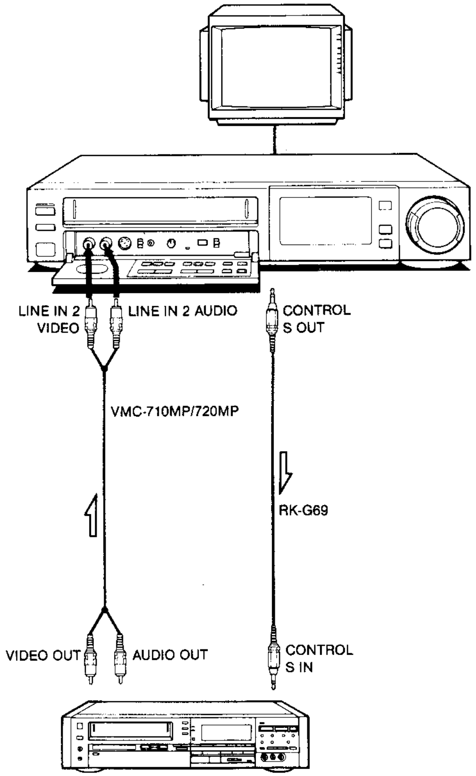
■To set LANC mode

When the other VTR is connected via the CONTROL L connector, you may select the LANC mode which determines if this VTR controls the other VTR via the CONTROL L connector or it is controlled by the other VTR. This is LANC mode. To perform synchronized editing using the SYNCHRO EDIT button on this VTR, set the LANC mode selector to M on the unit.

■Operation

See "Synchronized Editing from Another VTR" on page 65.

Notes
- The cables are not supplied.
- The ⇦ mark indicates the signal flow.


LINE IN 2 VIDEO
LINE IN 2 AUDIO
CONTROL S OUT
VMC-710MP/720MP
RK-G69
VIDEO OUT
AUDIO OUT
CONTROL S IN

Connecting a VTR Equipped with a CONTROL S Input Jack

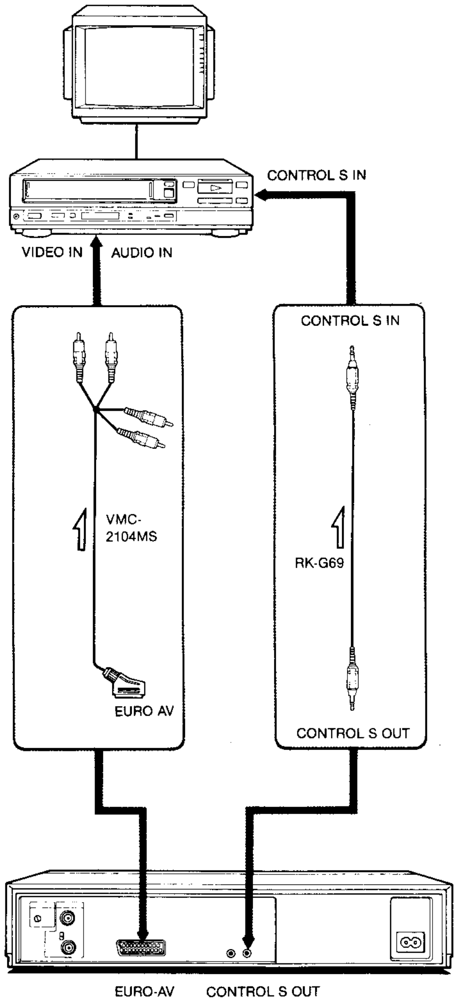
Using this VTR as a recording VTR and another VTR as a playback VTR.

■Before you begin
- Make connections as illustrated. If the other VTR is a stereo type, make connections with the VMC-910MSP/920MSP cable.
- Press INPUT SELECT on this VTR to indicate LINE L2.
- Activate the EDIT function if the other VTR has it.
  (The EDIT function of this VTR is automatically activated when SYNCHRO EDIT on this unit is pressed.)
- Select the recording mode, SP or LP.

■Operation

See "Synchronized Editing from Another VTR" on page 65.

Notes
- The cables are not supplied.
- The ⇦ mark indicates the signal flow.


CONTROL S IN
VIDEO IN
AUDIO IN
CONTROL S IN
VMC-
2104MS
RK-G69
EURO AV
CONTROL S OUT
EURO-AV
CONTROL S OUT

Connecting a VTR Equipped with a Control S Input Jack

Using this VTR as a playback VTR and another VTR as a recording VTR.

■Before you begin

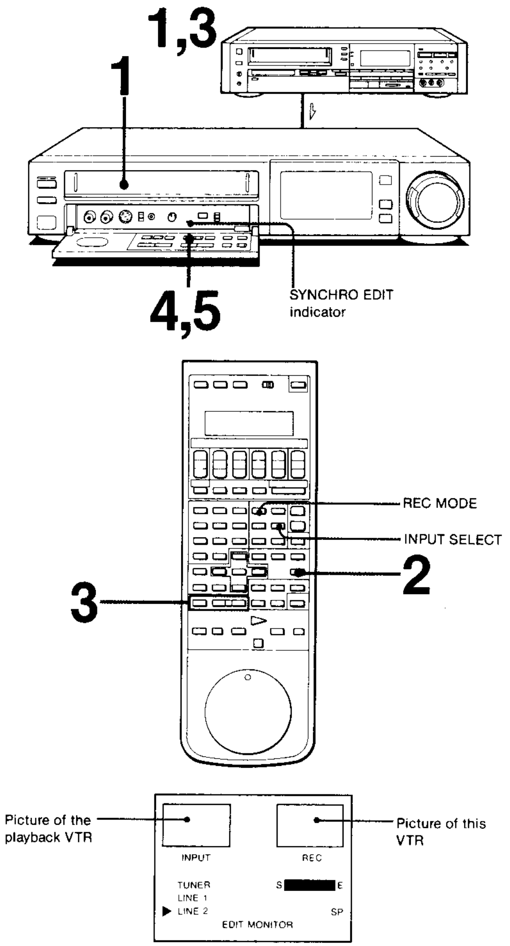
- Make connections as illustrated. If the other VTR is a stereo type, make connection with the VMC-2106S cable.
- Activate the EDIT function if the other VTR has it.

■Operation

See "Synchronized Editing onto Another VTR" on page 66.

Notes

- The cables are not supplied.
- The ⇦ mark indicates the signal flow.


1,3
1
4,5
SYNCHRO EDIT
indicator
REC MODE
INPUT SELECT
2
3
Picture of the
playback VTR
Picture of this
VTR
INPUT
REC
TUNER
LINE 1
▶ LINE 2
S
E
SP
EDIT MONITOR

Synchronized Editing from Another VTR

Using this VTR as a recording VTR and another VTR as a playback VTR.

For connections, see page 62 or 63. The CONTROL L or CONTROL S connection is necessary.

■Before you begin

- Press INPUT SELECT on the Commander to indicate LINE L2.
- Activate the EDIT function if the other VTR has it.
- Select the recording mode, SP or LP.

■Operation

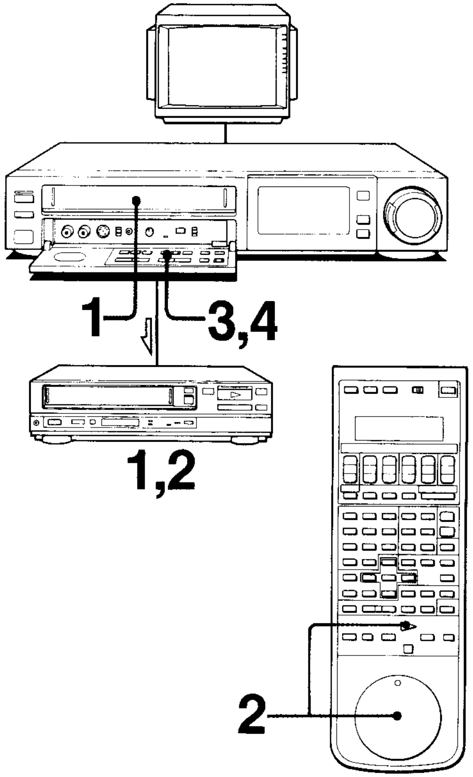
1. **Insert a source tape into the playback VTR. Insert a tape for recording into this VTR.**
2. **Press EDIT MONITOR.**
3. **Search for the playback start point and set the playback VTR to the playback pause mode. Search for the edit start point and set this VTR to the recording pause mode.**
4. **Press SYNCHRO EDIT on this VTR.**
   Recording and playback on both VTRs will start.
   (The EDIT function will be activated automatically.)
5. **Press SYNCHRO EDIT again.**
   Both VTRs will enter the pause mode.
6. **To edit more scenes, repeat steps 3 to 5.**

To stop editing, press ■ STOP on both VTRs.

Notes

- When this unit is used as the recording VTR and the SYNCHRO EDIT indicator lights, if the variable speed picture such as the slow speed or double speed picture is played back on the playback VTR, the variable speed picture will be recorded.
- For considering of the rise time of the playback VTR, the recording will start approximately 1 second after the playback pause mode is released.

Synchronized Editing — Operation



Synchronized Editing onto Another VTR

Using this VTR as a playback VTR and another VTR as a recording VTR.
For connections, see page 64. CONTROL L or CONTROL S connection is necessary.

■Operation

1 **Insert a source tape into this VTR. Insert a tape for recording into the recording VTR.**

2 **Search for the playback start point and set this VTR to the playback pause mode. Search for the edit start point and set the recording VTR to the recording pause mode.**

3 **Press SYNCHRO EDIT on this VTR.**
Recording and playback on both VTRs will start.
(The EDIT function will be activated automatically.)

4 **Press SYNCHRO EDIT again.**
Both VTRs will enter the pause mode.

5 **To edit more scenes, repeat steps 2 to 4.**

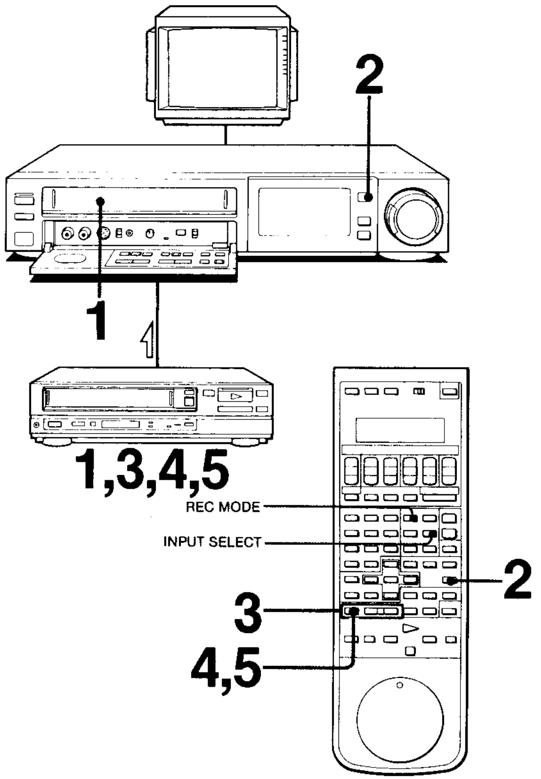
To stop editing, press ■ STOP on both VTRs.

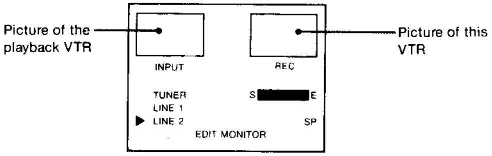
Note
Do not operate the buttons on the VTRs or Commander during editing. Doing so may cause a malfunction.

About the EDIT mode
When SYNCHRO EDIT on this unit is pressed, this VTR is automatically set to the EDIT mode. This enables recording and playback of higher quality pictures during editing.

When using the synchronized editing function of another Sony VTR
When the VTRs are connected via the CONTROL S jacks, set COMMAND MODE of this unit to VTR 1 or VTR 2. With VTR 3 setting, this VTR may not be operated.

Manual Editing — Editing with a VTR not Equipped with a Sony Control Terminal





Using this VTR as a recording VTR and another VTR as a playback VTR.

For connections, see page 60. The CONTROL L or CONTROL S connection is not necessary.

■ Before you begin

- Press INPUT SELECT on the Commander to indicate LINE L2.
- Activate the EDIT function if the other VTR has it.
- Select the recording mode, SP or LP.

■Operation

1 **Insert a source tape into the playback VTR. Insert a tape for recording into this VTR.**

2 **Press EDIT MONITOR.**

3 **Search for the playback start point and set the playback VTR to the playback pause mode. Search for the edit start point and set this VTR to the recording pause mode.**

4 **To start editing, press ❚❚ PAUSE on both VTRs.**

5 **To stop editing, press ❚❚ PAUSE on both VTRs.**

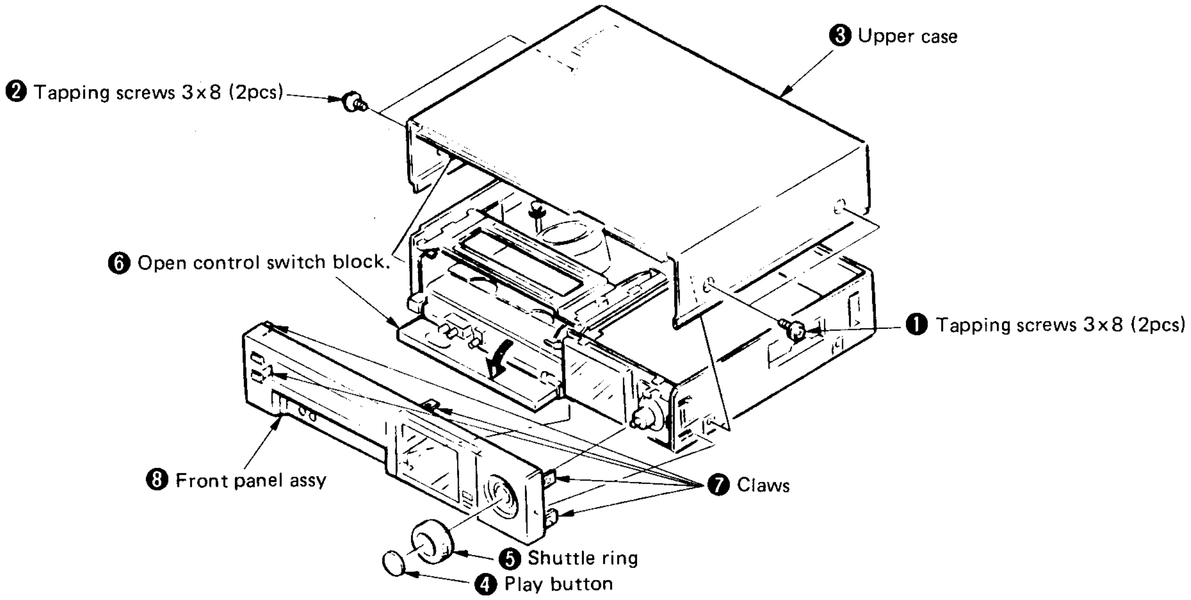
6 **To edit more scenes, repeat steps 3 to 5.**

To stop editing, press ■ STOP on both VTRs.

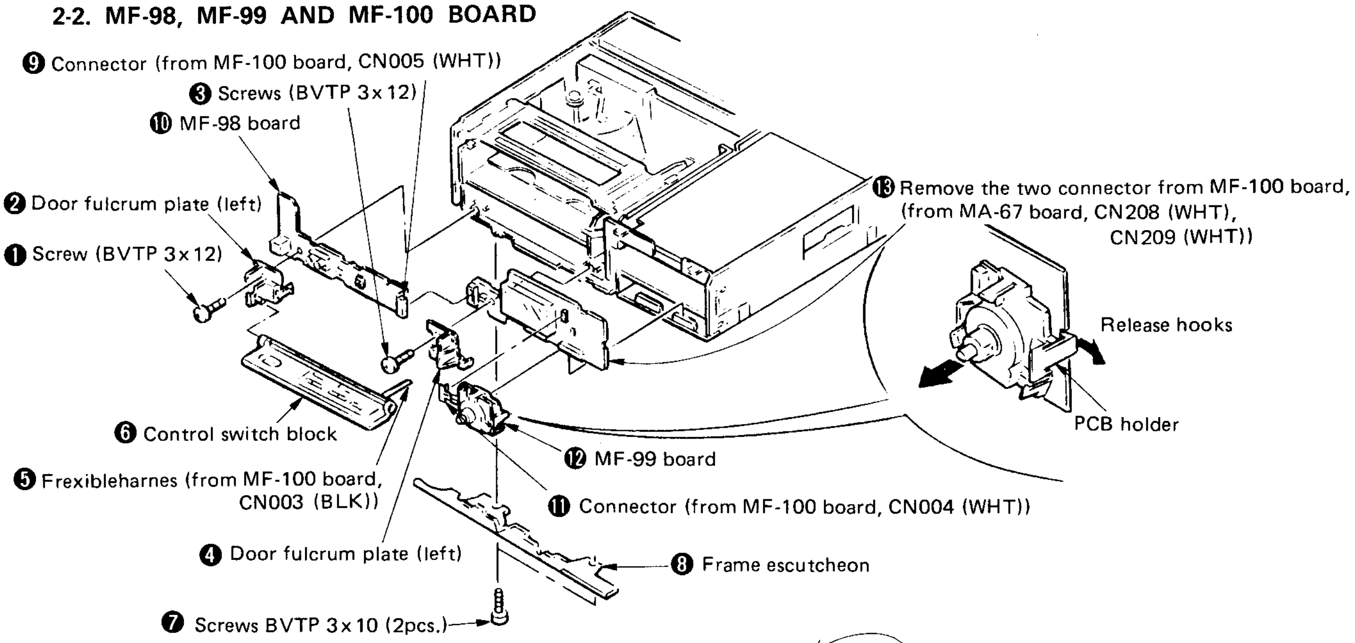
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

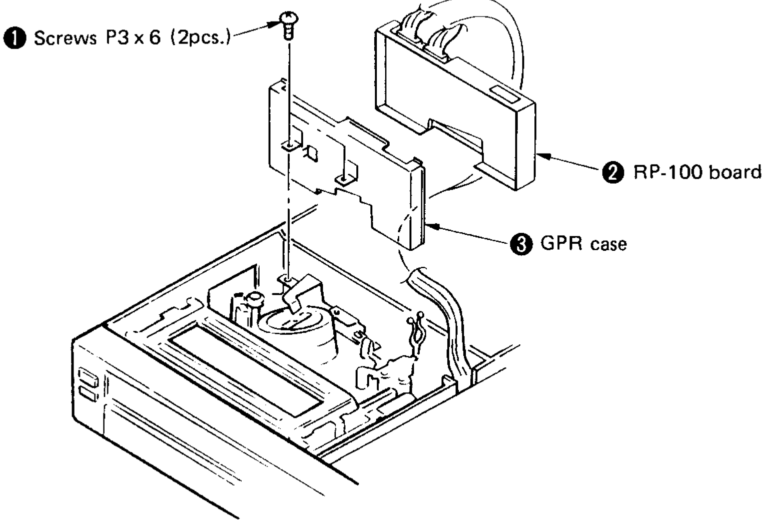
2-1. UPPER CASE, FRONT PANEL ASSY


③ Upper case
② Tapping screws 3x8 (2pcs)
⑥ Open control switch block.
① Tapping screws 3x8 (2pcs)
⑧ Front panel assy
⑦ Claws
⑤ Shuttle ring
④ Play button

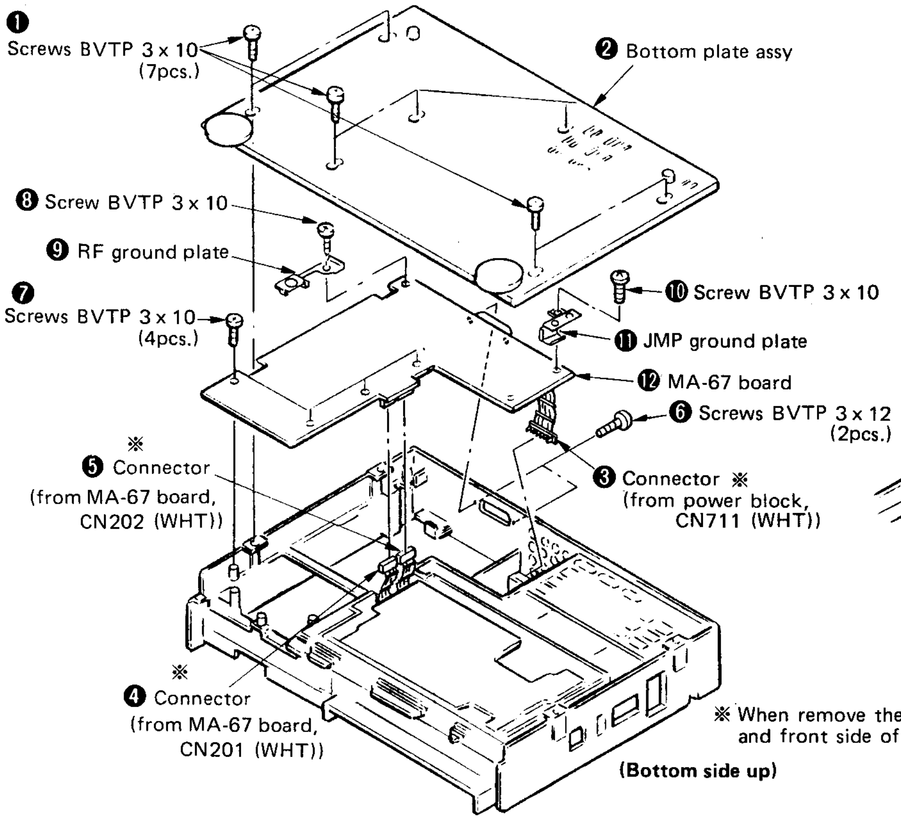
2-2. MF-98, MF-99 AND MF-100 BOARD


⑨ Connector (from MF-100 board, CN005 (WHT))
③ Screws (BVTP 3x12)
⑩ MF-98 board
② Door fulcrum plate (left)
① Screw (BVTP 3x12)
⑬ Remove the two connector from MF-100 board, (from MA-67 board, CN208 (WHT), CN209 (WHT))
Release hooks
PCB holder
⑥ Control switch block
⑫ MF-99 board
⑤ Frexibleharnes (from MF-100 board, CN003 (BLK))
⑪ Connector (from MF-100 board, CN004 (WHT))
④ Door fulcrum plate (left)
⑧ Frame escutcheon
⑦ Screws BVTP 3x10 (2pcs.)

2-3. RP-100 BOARD


① Screws P3x6 (2pcs.)
② RP-100 board
③ GPR case

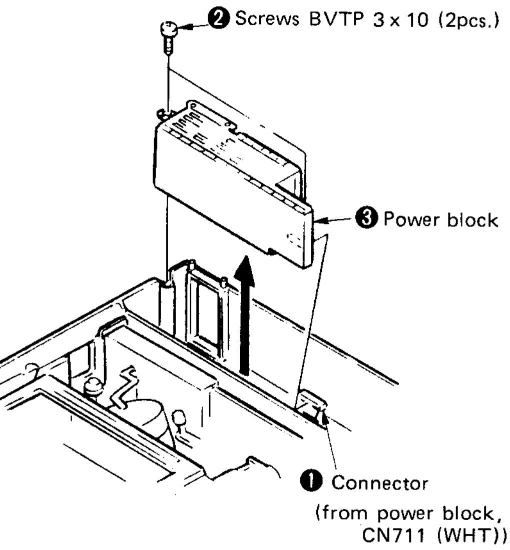
2-4. POWER BLOCK


❶ Screws BVTP 3 x 10 (7pcs.)
❷ Bottom plate assy
❽ Screw BVTP 3 x 10
❾ RF ground plate
❼ Screws BVTP 3 x 10 (4pcs.)
❿ Screw BVTP 3 x 10
⓫ JMP ground plate
⓬ MA-67 board
❻ Screws BVTP 3 x 12 (2pcs.)
※ ❺ Connector (from MA-67 board, CN202 (WHT))
❸ Connector ※ (from power block, CN711 (WHT))
※ ❹ Connector (from MA-67 board, CN201 (WHT))

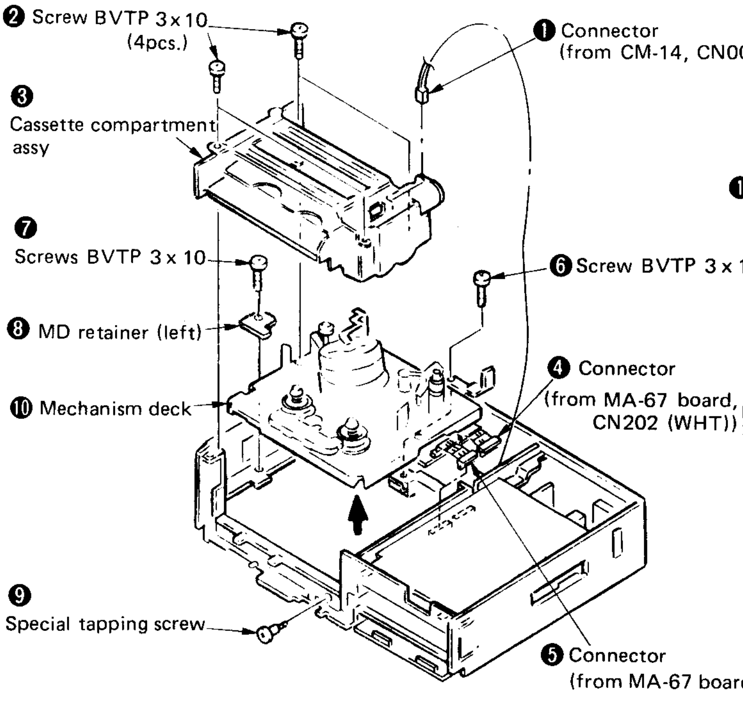
※When remove the connectors and front side of set at first.

(Bottom side up)

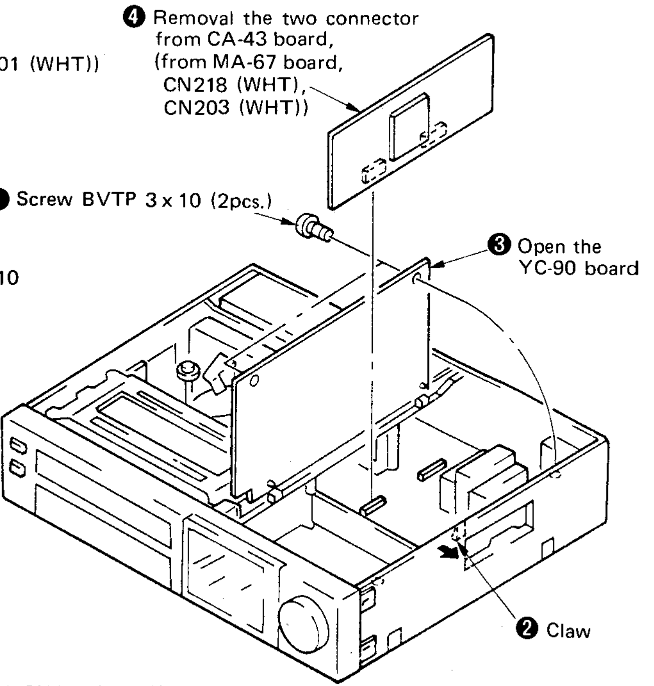
2-5. 2-5. BOTTOM PLATE, MA-67 BOARD


❷ Screws BVTP 3 x 10 (2pcs.)
❸ Power block
❶ Connector (from power block, CN711 (WHT))

2-6. CASSETTE COMPARTMENT ASSY AND MECHANISM DECK ASSY

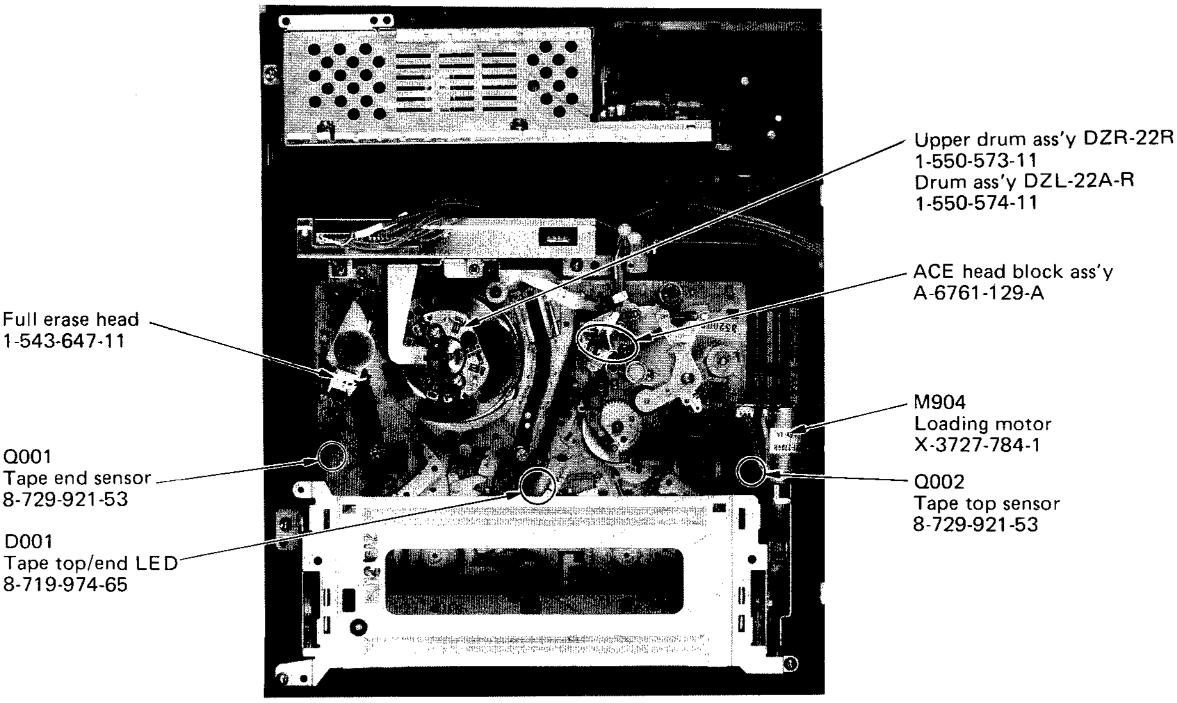

❷ Screw BVTP 3x10 (4pcs.)
❸ Cassette compartment assy
❶ Connector (from CM-14, CN001 (WHT))
❼ Screws BVTP 3 x 10
❻ Screw BVTP 3 x 10
❽ MD retainer (left)
❹ Connector (from MA-67 board, CN202 (WHT))
❿ Mechanism deck
❾ Special tapping screw
❺ Connector (from MA-67 board, CN201 (WHT))

2-7. YC-90 AND CA-43 BOARD

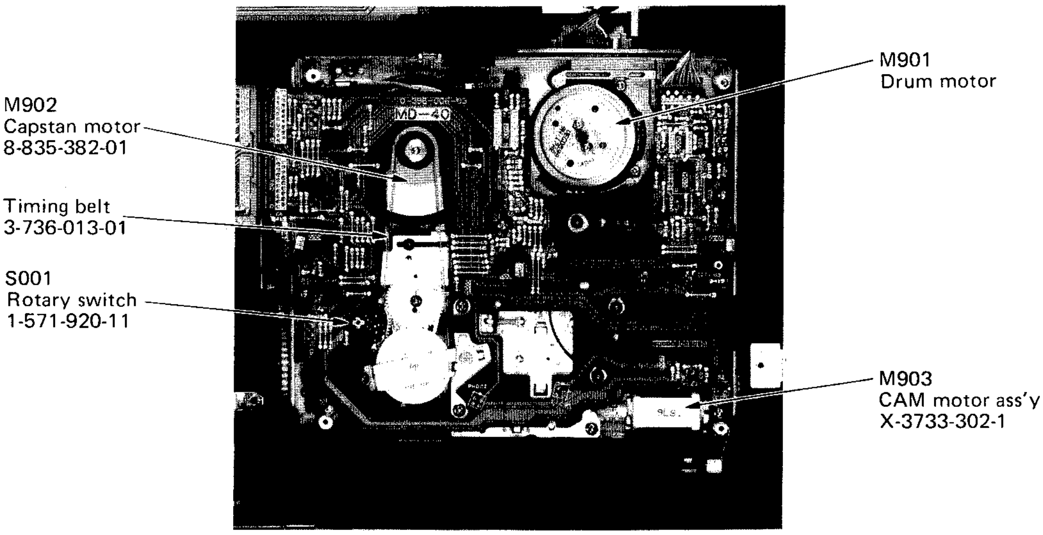

❹ Removal the two connector from CA-43 board, (from MA-67 board, CN218 (WHT), CN203 (WHT))
❶ Screw BVTP 3 x 10 (2pcs.)
❸ Open the YC-90 board
❷ Claw

2-8. INTERNAL VIEWS

—Top Side—

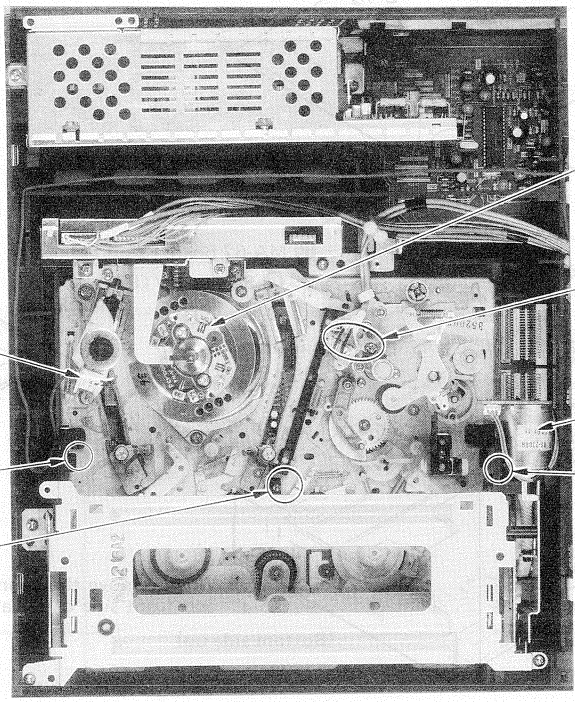

Upper drum ass'y DZR-22R
1-550-573-11
Drum ass'y DZL-22A-R
1-550-574-11
ACE head block ass'y
A-6761-129-A
Full erase head
1-543-647-11
M904
Loading motor
X-3727-784-1
Q001
Tape end sensor
8-729-921-53
Q002
Tape top sensor
8-729-921-53
D001
Tape top/end LED
8-719-974-65

— Bottom Side —


M901
Drum motor
M902
Capstan motor
8-835-382-01
Timing belt
3-736-013-01
S001
Rotary switch
1-571-920-11
M903
CAM motor ass'y
X-3733-302-1

2-8. INTERNAL VIEWS

– Top Side –



Upper drum ass'y DZR-22R
1-550-573-11
Drum ass'y DZL-22A-R
1-550-574-11

ACE head block ass'y
A-6761-129-A

Full erase head
1-543-647-11

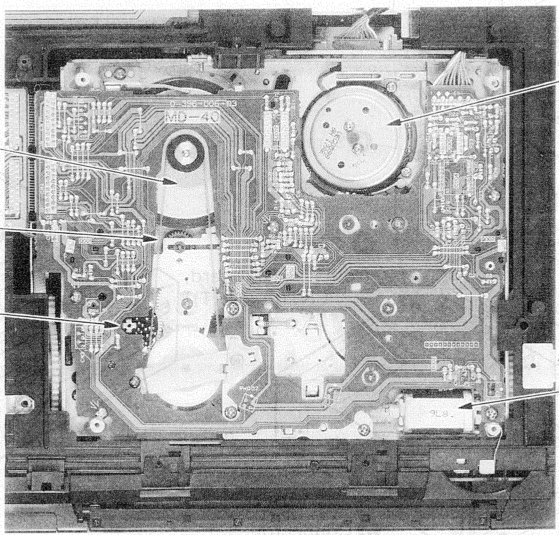
M904
Loading motor
X-3727-784-1

Q001
Tape end sensor
8-729-921-53

Q002
Tape top sensor
8-729-921-53

D001
Tape top/end LED
8-719-974-65

– Bottom Side –



M901
Drum motor

M902
Capstan motor
8-835-382-01

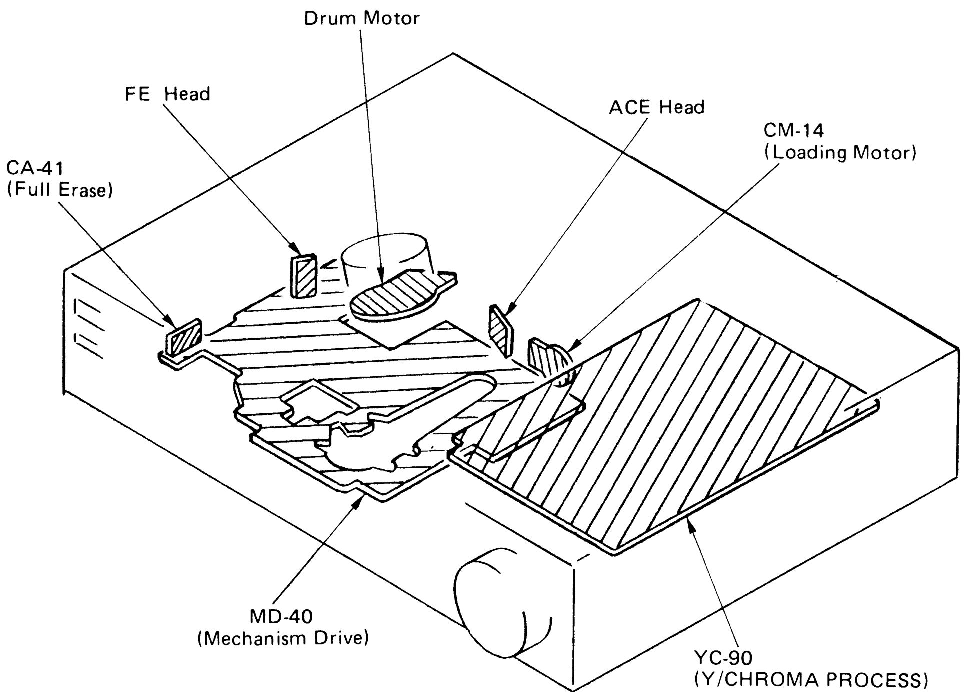
Timing belt
3-736-013-01

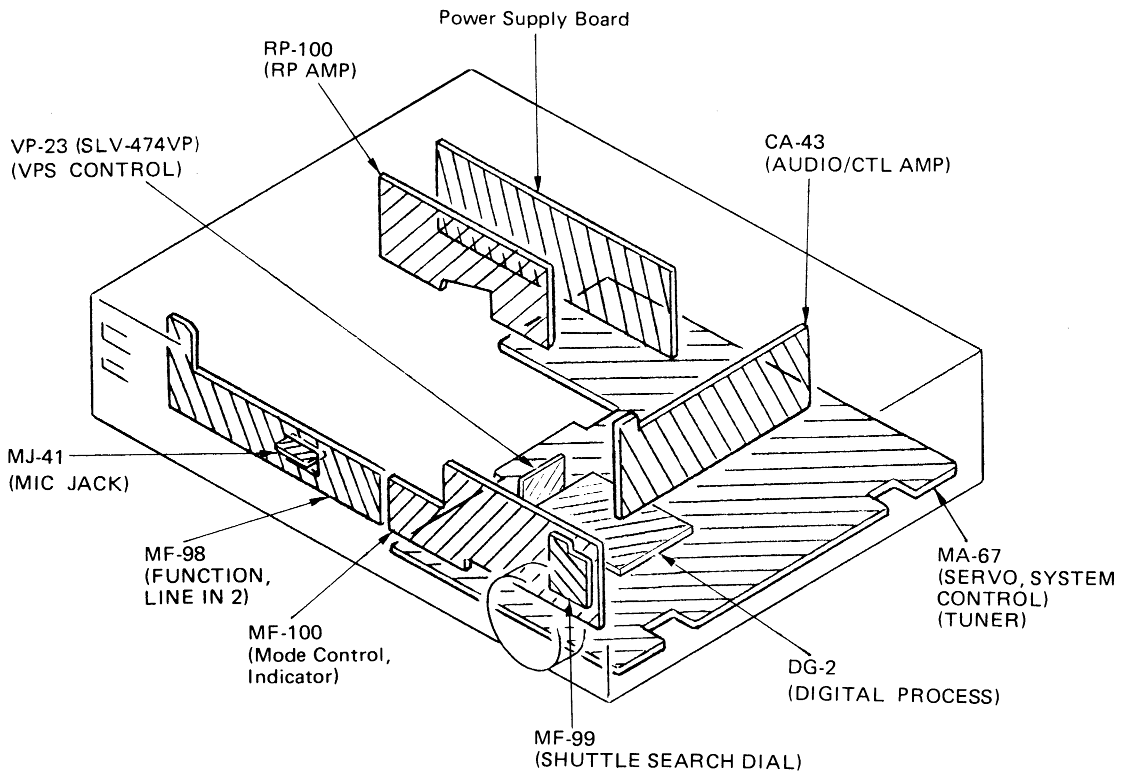
S001
Rotary switch
1-571-920-11

M903
CAM motor ass'y
X-3733-302-1

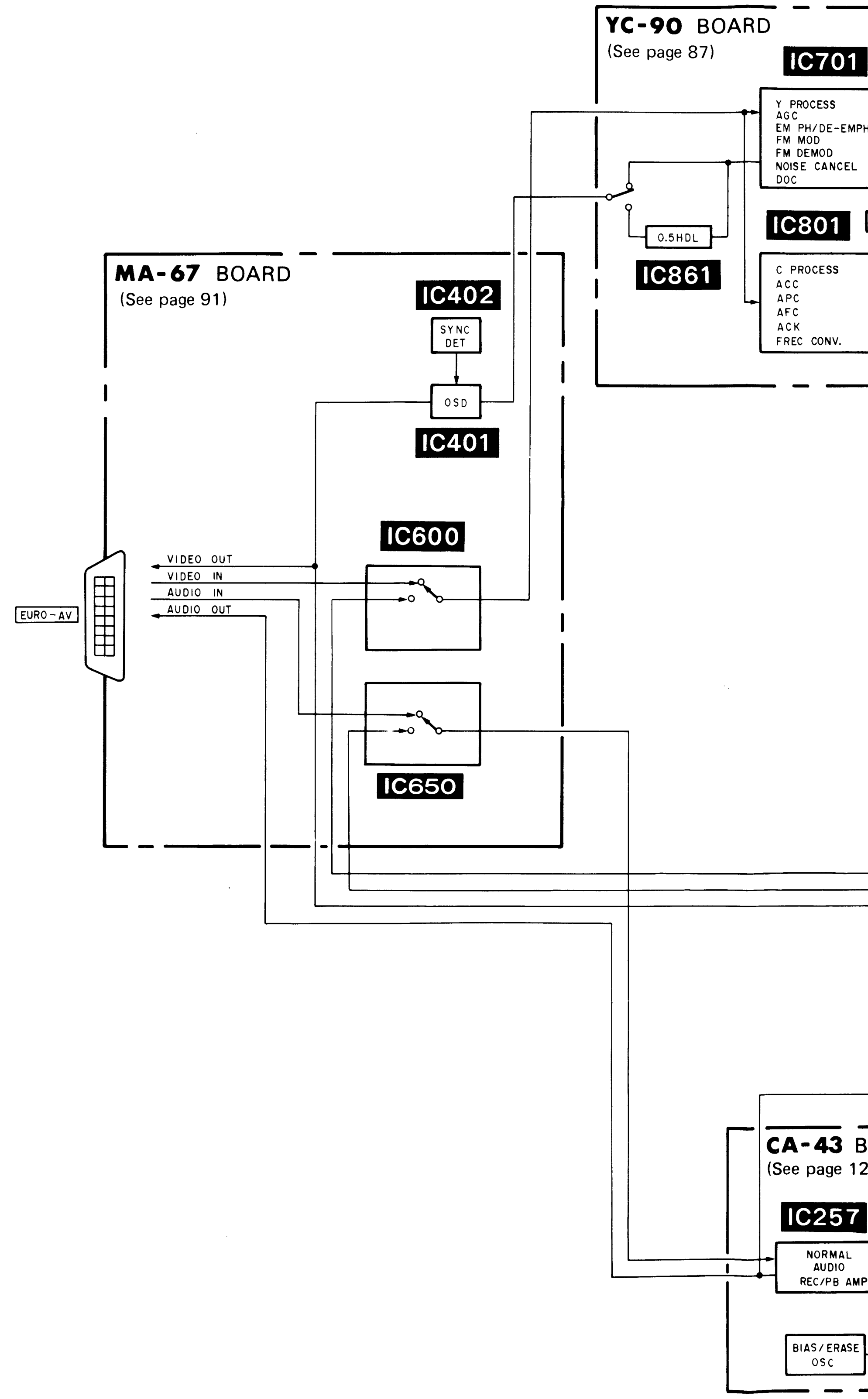
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

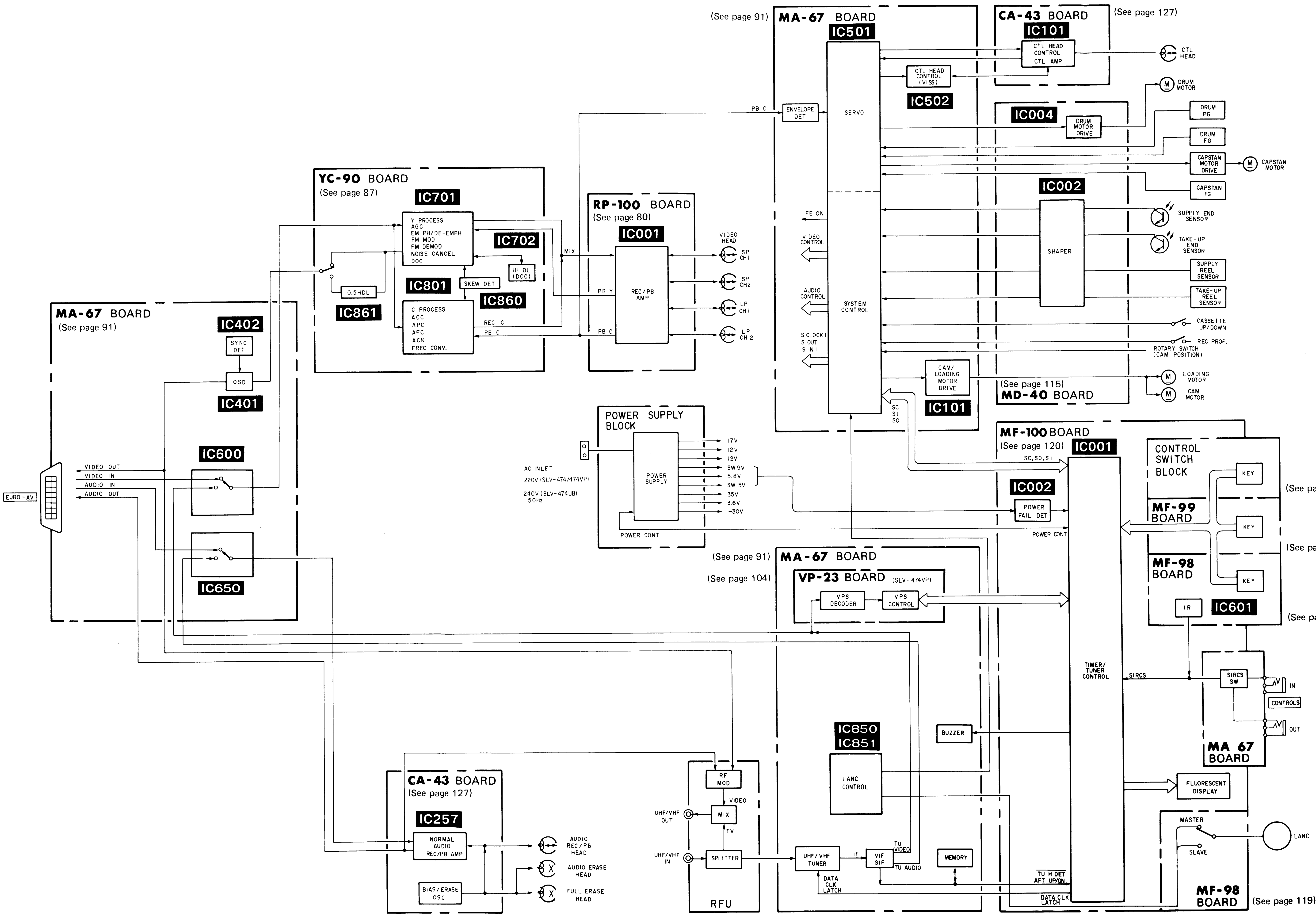

Drum Motor
FE Head
ACE Head
CM-14
(Loading Motor)
CA-41
(Full Erase)
MD-40
(Mechanism Drive)
YC-90
(Y/CHROMA PROCESS)

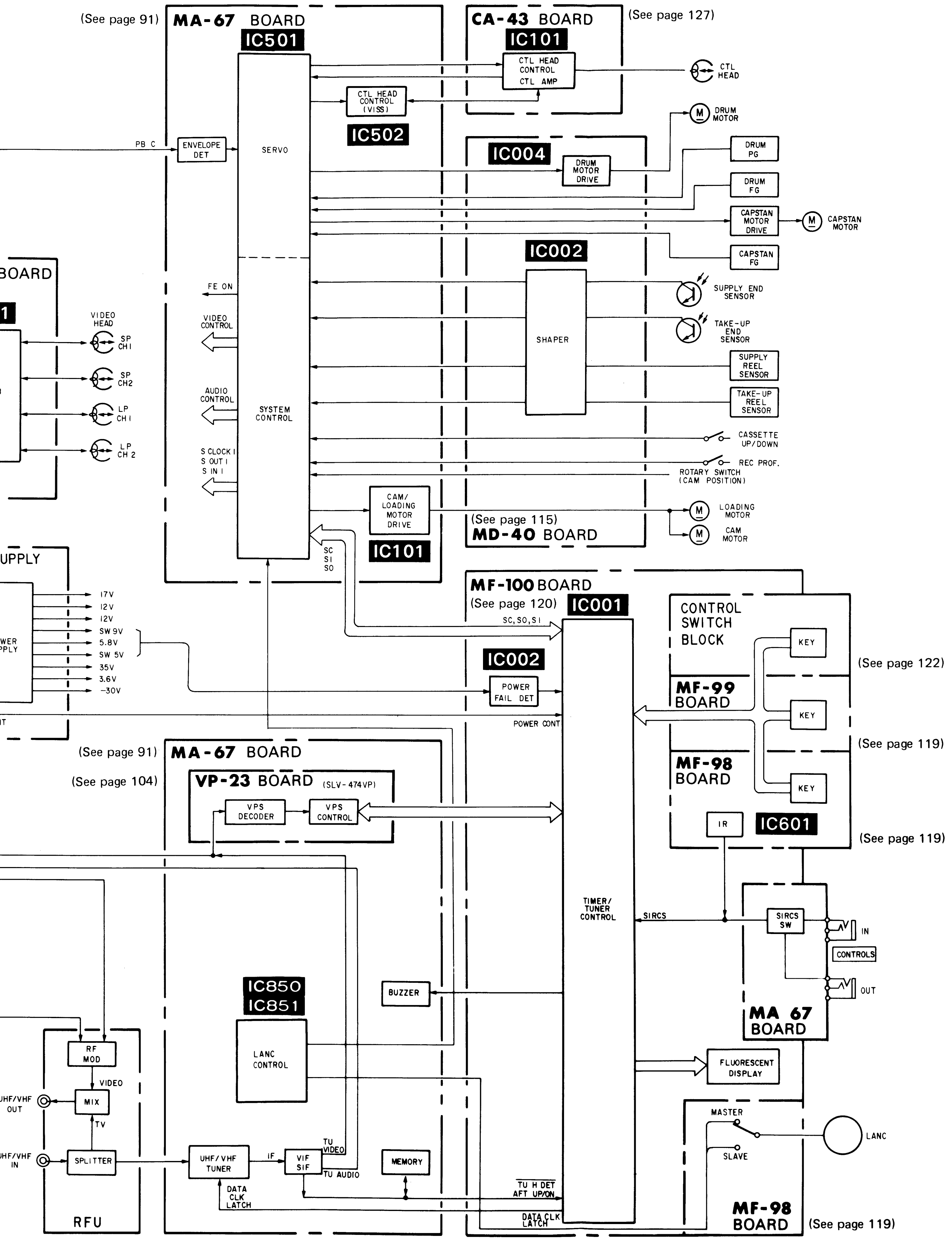

Power Supply Board
RP-100
(RP AMP)
VP-23 (SLV-474VP)
(VPS CONTROL)
CA-43
(AUDIO/CTL AMP)
MJ-41
(MIC JACK)
MF-98
(FUNCTION,
LINE IN 2)
MF-100
(Mode Control,
Indicator)
MA-67
(SERVO, SYSTEM
CONTROL)
(TUNER)
DG-2
(DIGITAL PROCESS)
MF-99
(SHUTTLE SEARCH DIAL)

3-2. OVER ALL BLOCK DIAGRAM

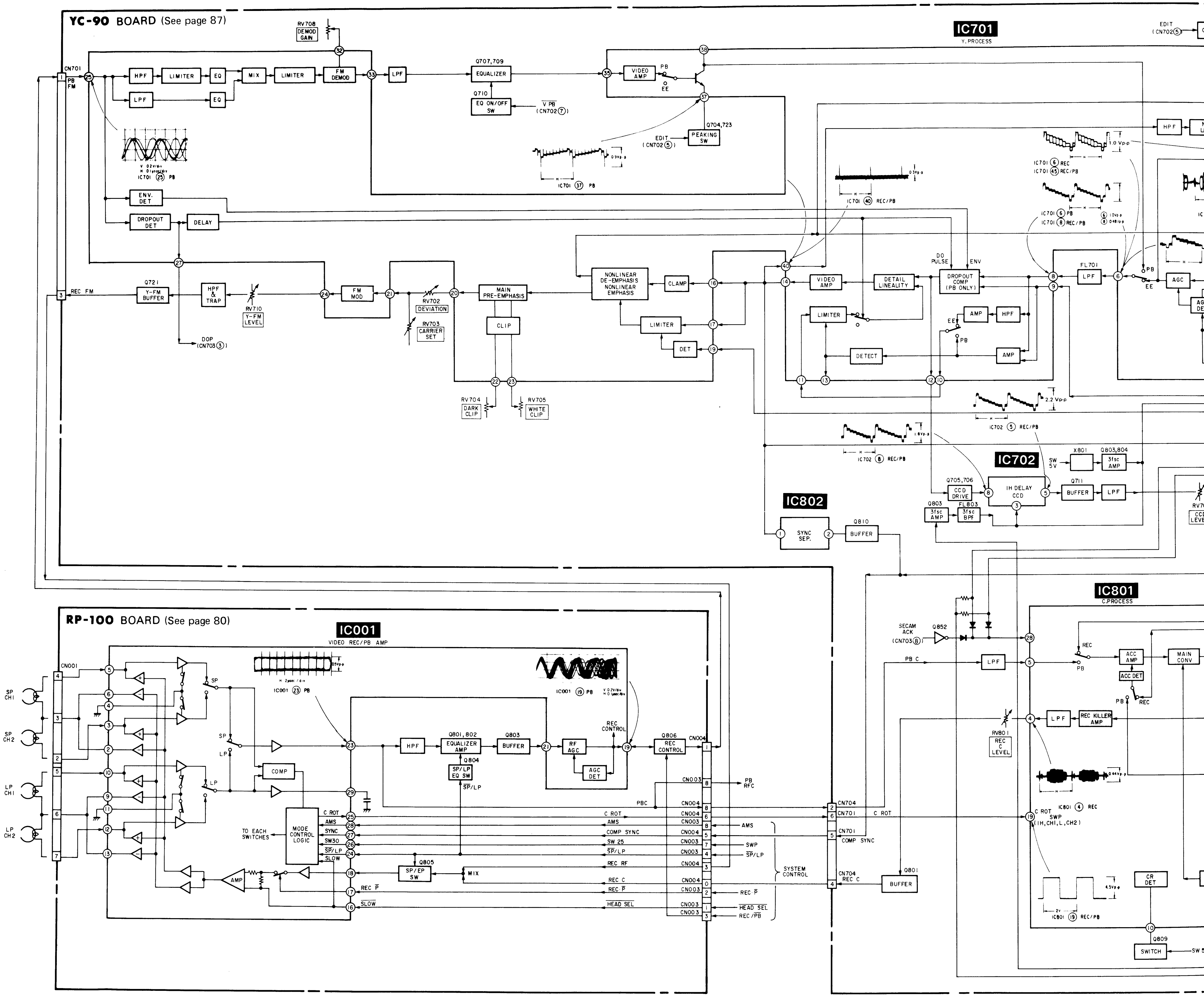

YC-90 BOARD
(See page 87)
IC701
Y PROCESS
AGC
EM PH/DE-EMPH
FM MOD
FM DEMOD
NOISE CANCEL
DOC
0.5HDL
IC861
IC801
C PROCESS
ACC
APC
AFC
ACK
FREC CONV.
MA-67 BOARD
(See page 91)
IC402
SYNC DET
OSD
IC401
IC600
IC650
EURO-AV
VIDEO OUT
VIDEO IN
AUDIO IN
AUDIO OUT
CA-43 B
(See page 12
IC257
NORMAL AUDIO REC/PB AMP
BIAS/ERASE OSC

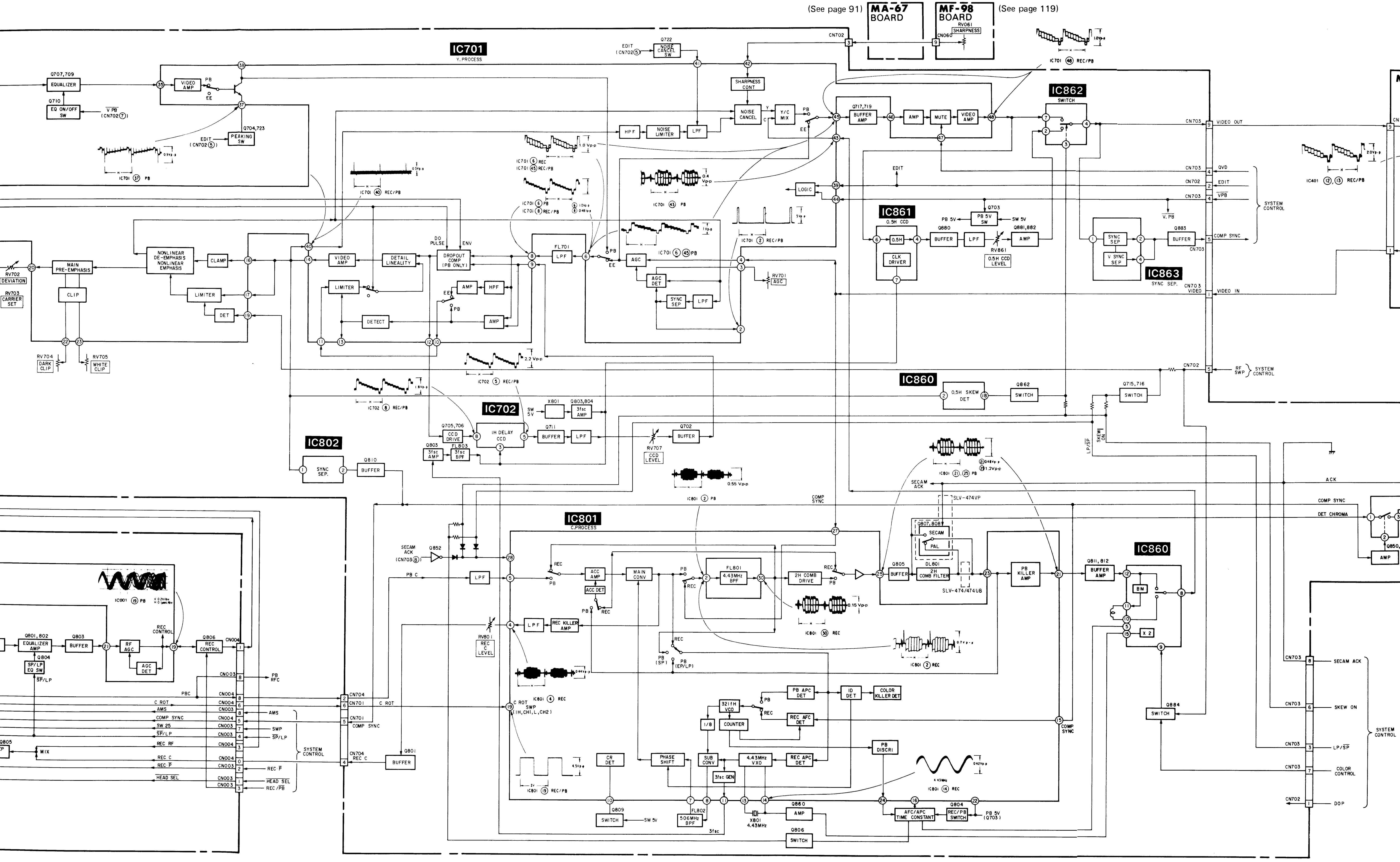
L BLOCK DIAGRAM

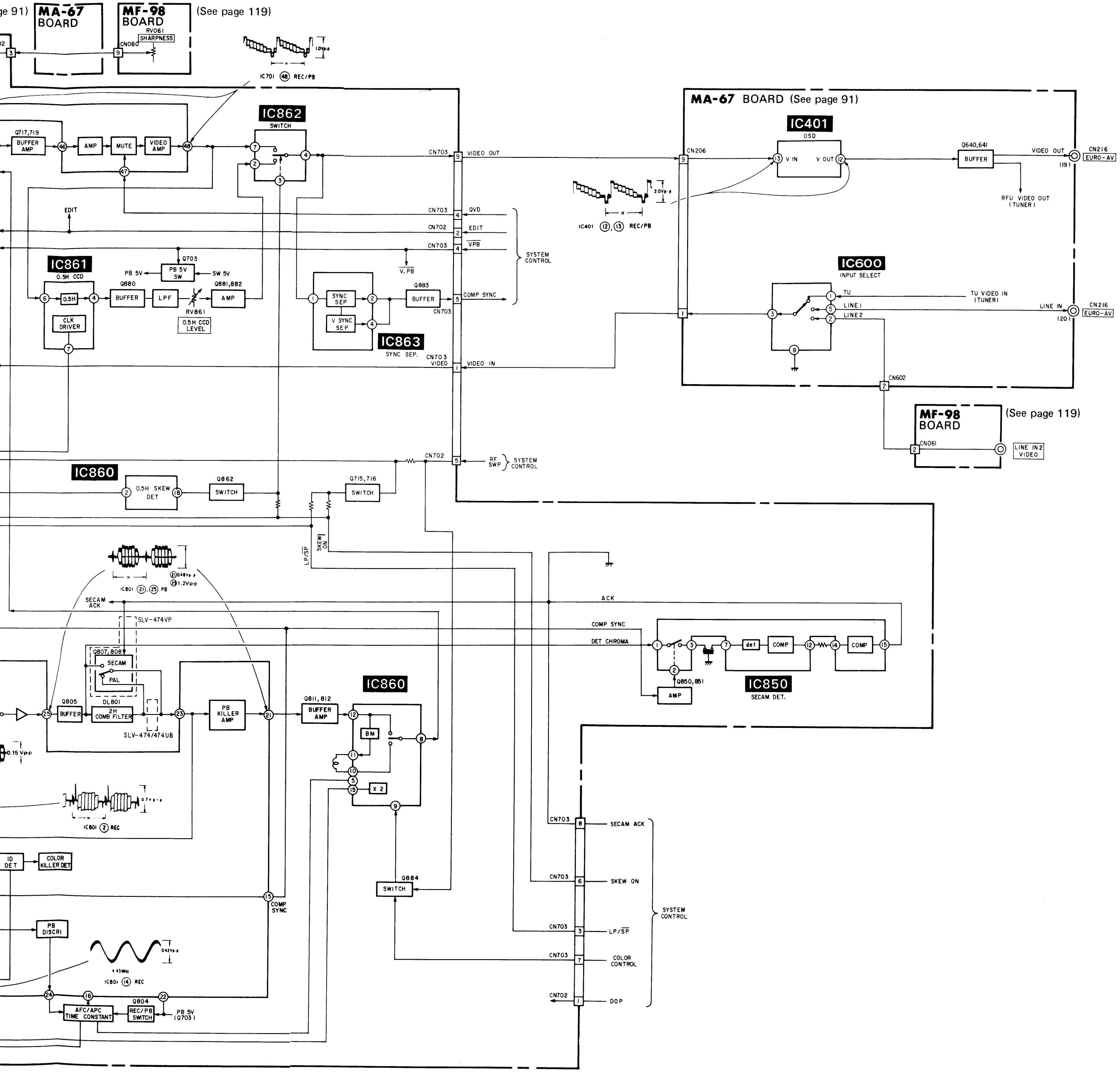

MA-67 BOARD
(See page 91)
IC402
SYNC DET
OSD
IC401
IC600
IC650
EURO-AV
VIDEO OUT
VIDEO IN
AUDIO IN
AUDIO OUT
YC-90 BOARD
(See page 87)
IC701
Y PROCESS
AGC
EM PH/DE-EMPH
FM MOD
FM DEMOD
NOISE CANCEL
DOC
IC702
IH DL (DOC)
IC801
SKEW DET
IC860
0.5HDL
IC861
C PROCESS
ACC
APC
AFC
ACK
FREC CONV.
REC C
PB C
MIX
RP-100 BOARD
(See page 80)
IC001
REC/PB AMP
PB Y
PB C
VIDEO HEAD
SP CH1
SP CH2
LP CH1
LP CH 2
POWER SUPPLY BLOCK
POWER SUPPLY
AC INLET
220V (SLV-474/474VP)
240V (SLV-474UB)
50Hz
17V
12V
12V
SW 9V
5.8V
SW 5V
35V
3.6V
−30V
POWER CONT
(See page 91)
MA-67 BOARD
IC501
PB C
ENVELOPE DET
SERVO
SYSTEM CONTROL
FE ON
VIDEO CONTROL
AUDIO CONTROL
S CLOCK I
S OUT I
S IN I
SC
SI
SO
CTL HEAD CONTROL (VISS)
IC502
CAM/ LOADING MOTOR DRIVE
IC101
CA-43 BOARD
(See page 127)
IC101
CTL HEAD CONTROL
CTL AMP
CTL HEAD
DRUM MOTOR
IC004
DRUM MOTOR DRIVE
DRUM PG
DRUM FG
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR
CAPSTAN FG
IC002
SHAPER
SUPPLY END SENSOR
TAKE-UP END SENSOR
SUPPLY REEL SENSOR
TAKE-UP REEL SENSOR
CASSETTE UP/DOWN
REC PROF.
ROTARY SWITCH (CAM POSITION)
LOADING MOTOR
CAM MOTOR
(See page 115)
MD-40 BOARD
MF-100 BOARD
(See page 120)
IC001
SC, SO, SI
IC002
POWER FAIL DET
POWER CONT
TIMER/ TUNER CONTROL
SIRCS
CONTROL SWITCH BLOCK
KEY
MF-99 BOARD
KEY
MF-98 BOARD
KEY
IR
IC601
(See pa
(See pa
(See pa
SIRCS SW
IN
CONTROLS
OUT
MA 67 BOARD
FLUORESCENT DISPLAY
MASTER
SLAVE
LANC
MF-98 BOARD
(See page 119)
(See page 91)
MA-67 BOARD
(See page 104)
VP-23 BOARD (SLV-474VP)
VPS DECODER
VPS CONTROL
IC850
IC851
LANC CONTROL
BUZZER
MEMORY
UHF/VHF TUNER
IF
VIF SIF
TU VIDEO
TU AUDIO
DATA CLK LATCH
TU H DET
AFT UP/ON
DATA CLK LATCH
RF MOD
VIDEO
MIX
TV
SPLITTER
UHF/VHF OUT
UHF/VHF IN
RFU
CA-43 BOARD
(See page 127)
IC257
NORMAL AUDIO REC/PB AMP
BIAS/ERASE OSC
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD


(See page 91)
MA-67 BOARD
IC501
SERVO
SYSTEM CONTROL
ENVELOPE DET
PB C
FE ON
VIDEO CONTROL
AUDIO CONTROL
S CLOCK I
S OUT I
S IN I
CTL HEAD CONTROL (VISS)
IC502
CA-43 BOARD
IC101
CTL HEAD CONTROL
CTL AMP
(See page 127)
CTL HEAD
IC004
DRUM MOTOR DRIVE
DRUM MOTOR
DRUM PG
DRUM FG
CAPSTAN MOTOR DRIVE
CAPSTAN MOTOR
CAPSTAN FG
IC002
SHAPER
SUPPLY END SENSOR
TAKE-UP END SENSOR
SUPPLY REEL SENSOR
TAKE-UP REEL SENSOR
CASSETTE UP/DOWN
REC PROF.
ROTARY SWITCH (CAM POSITION)
CAM/ LOADING MOTOR DRIVE
IC101
(See page 115)
MD-40 BOARD
LOADING MOTOR
CAM MOTOR
SC
SI
SO
BOARD
VIDEO HEAD
SP CH1
SP CH2
LP CH1
LP CH 2
UPPLY
WER
PPLY
17V
12V
12V
SW 9V
5.8V
SW 5V
35V
3.6V
-30V
MF-100 BOARD
(See page 120)
IC001
SC,SO,SI
IC002
POWER FAIL DET
POWER CONT
CONTROL SWITCH BLOCK
KEY
(See page 122)
MF-99 BOARD
KEY
(See page 119)
MF-98 BOARD
KEY
IR
IC601
(See page 119)
(See page 91)
MA-67 BOARD
(See page 104)
VP-23 BOARD (SLV-474VP)
VPS DECODER
VPS CONTROL
TIMER/ TUNER CONTROL
SIRCS
SIRCS SW
IN
CONTROLS
OUT
MA 67 BOARD
IC850
IC851
LANC CONTROL
BUZZER
FLUORESCENT DISPLAY
MASTER
SLAVE
LANC
RF MOD
VIDEO
MIX
TV
UHF/VHF OUT
UHF/VHF IN
SPLITTER
RFU
UHF/VHF TUNER
IF
VIF SIF
TU VIDEO
TU AUDIO
DATA CLK LATCH
MEMORY
TU H DET
AFT UP/ON
DATA CLK LATCH
MF-98 BOARD
(See page 119)

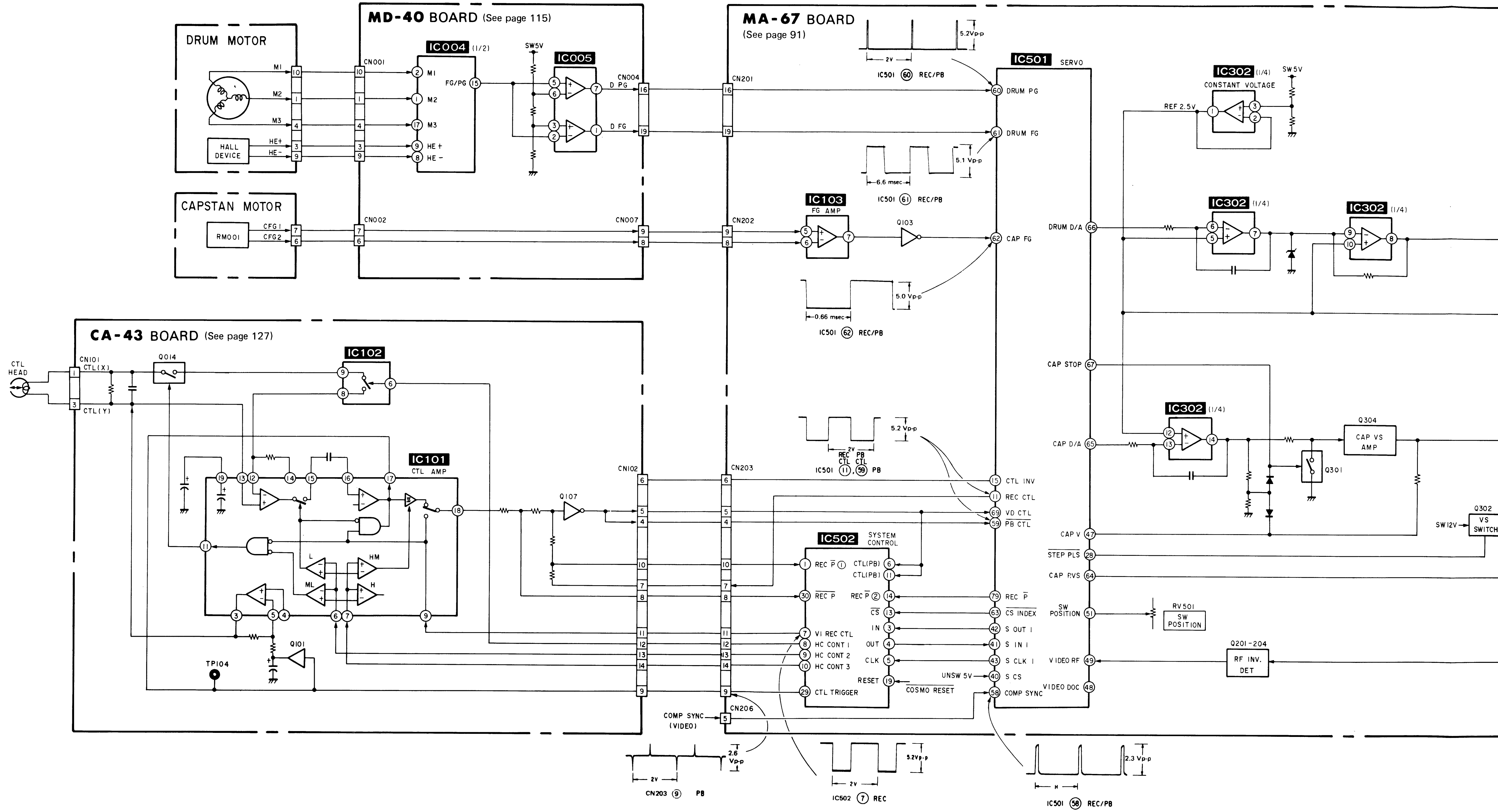
3-3. VIDEO BLOCK DIAGRAM

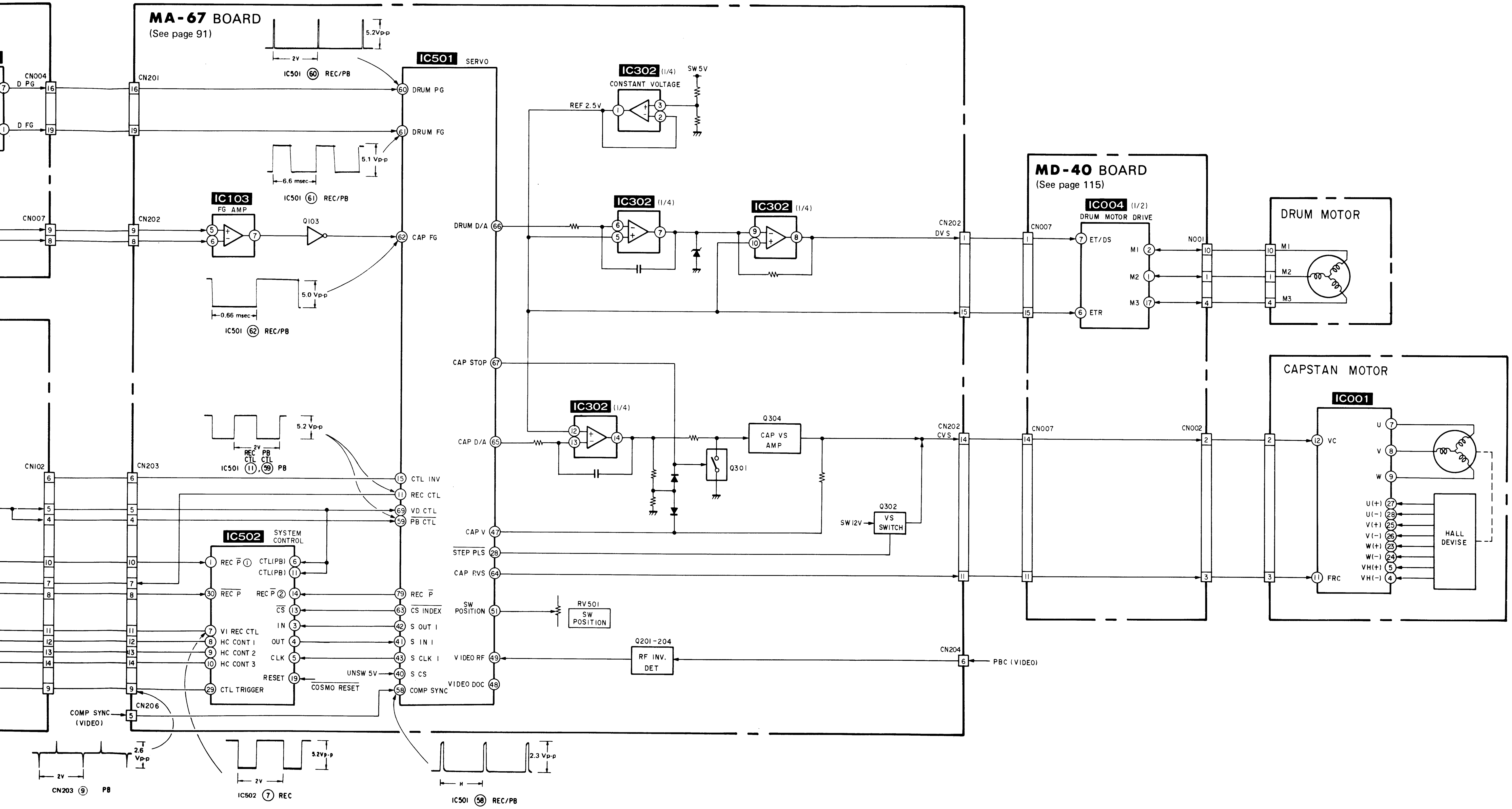

YC-90 BOARD (See page 87)
IC701 Y.PROCESS
IC702
IC802
IC801 C.PROCESS
RP-100 BOARD (See page 80)
IC001 VIDEO REC/PB AMP
CN701
PB FM
REC FM
HPF
LIMITER
EQ
MIX
FM DEMOD
LPF
RV708 DEMOD GAIN
Q707,709 EQUALIZER
Q710 EQ ON/OFF SW
V PB (CN702⑦)
VIDEO AMP
PB
EE
Q704,723 PEAKING SW
EDIT (CN702⑤)
ENV. DET
DROPOUT DET
DELAY
Q721 Y-FM BUFFER
HPF & TRAP
RV710 Y-FM LEVEL
FM MOD
RV702 DEVIATION
RV703 CARRIER SET
MAIN PRE-EMPHASIS
CLIP
RV704 DARK CLIP
RV705 WHITE CLIP
NONLINEAR DE-EMPHASIS NONLINEAR EMPHASIS
CLAMP
LIMITER
DET
DOP (CN703③)
DETAIL LINEALITY
DROPOUT COMP (PB ONLY)
DO PULSE
ENV
DETECT
AMP
FL701 LPF
AGC
IC701 ㉕ PB
IC701 ㉛ PB
IC701 ㊵ REC/PB
IC701 ⑥ REC
IC701 ㊺ REC/PB
IC701 ⑥ PB
IC701 ⑧ REC/PB
IC702 ⑤ REC/PB
IC702 ⑧ REC/PB
1.0 Vp-p
2.2 Vp-p
X801
Q803,804 3fsc AMP
SW 5V
Q705,706 CCD DRIVE
1H DELAY CCD
Q711 BUFFER
Q803 3fsc AMP
FL803 3fsc BPF
SYNC SEP.
Q810 BUFFER
SECAM ACK (CN703⑧)
Q852
PB C
REC
ACC AMP
ACC DET
MAIN CONV
RV801 REC C LEVEL
REC KILLER AMP
C ROT
SWP (1H,CH1,L,CH2)
IC801 ④ REC
IC801 ⑲ REC/PB
CR DET
Q809 SWITCH
Q801 BUFFER
CN704
COMP SYNC
REC C
SP CH1
SP CH2
LP CH1
LP CH2
CN001
SP
LP
COMP
MODE CONTROL LOGIC
TO EACH SWITCHES
IC001 ㉓ PB
IC001 ⑲ PB
HPF
Q801,802 EQUALIZER AMP
Q804 SP/LP EQ SW
Q803 BUFFER
RF AGC
AGC DET
REC CONTROL
Q806 REC CONTROL
CN004
CN003
PB RFC
PBC
C ROT
AMS
SYNC
SW30
SP/LP
SLOW
Q805 SP/EP SW
MIX
AMP
REC P
HEAD SEL
REC/PB
SW 25
REC RF
SWP
SYSTEM CONTROL


(See page 91)
MA-67 BOARD
MF-98 BOARD
RV061 SHARPNESS
(See page 119)
IC701
Y. PROCESS
IC702
IC802
IC801
C. PROCESS
IC860
IC861
0.5H CCD
IC862
SWITCH
IC863
SYNC SEP.
EQUALIZER
EQ ON/OFF SW
VIDEO AMP
PEAKING SW
NOISE CANCEL SW
SHARPNESS CONT
NOISE CANCEL
Y/C MIX
HPF
NOISE LIMITER
LPF
BUFFER AMP
AMP
MUTE
LOGIC
NONLINEAR DE-EMPHASIS NONLINEAR EMPHASIS
MAIN PRE-EMPHASIS
CLAMP
LIMITER
DET
CLIP
RV702 DEVIATION
RV703 CARRIER SET
RV704 DARK CLIP
RV705 WHITE CLIP
DETAIL LINEALITY
DROPOUT COMP (PB ONLY)
DO PULSE
ENV
FL701
AGC
AGC DET
SYNC SEP
RV701 AGC
DETECT
1H DELAY CCD
CCD DRIVE
3fsc AMP
3fsc BPF
RV707 CCD LEVEL
0.5H SKEW DET
CLK DRIVER
RV861 0.5H CCD LEVEL
SYSTEM CONTROL
VIDEO OUT
QVD
EDIT
V̄P̄B̄
COMP SYNC
VIDEO IN
RF SWP
ACK
DET CHROMA
SECAM ACK
SKEW ON
LP/S̄P̄
COLOR CONTROL
DOP
RF AGC
AGC DET
REC CONTROL
SP/LP EQ SW
PB RFC
C ROT
AMS
SW 25
REC RF
REC C
REC P̄
HEAD SEL
REC/P̄B̄
MIX
ACC AMP
ACC DET
MAIN CONV
FL801 4.43MHz BPF
2H COMB DRIVE
2H COMB FILTER
SECAM
PAL
SLV-474VP
SLV-474/474UB
PB KILLER AMP
BUFFER AMP
BM
X 2
REC KILLER AMP
RV801 REC C LEVEL
PB APC DET
ID DET
COLOR KILLER DET
321fH VCO
COUNTER
1/8
REC AFC DET
PB DISCRI
CR DET
PHASE SHIFT
SUB CONV
4.43MHz VXO
REC APC DET
3fsc GEN
506MHz BPF
X801 4.43MHz
AFC/APC TIME CONSTANT
REC/PB SWITCH
PB 5V (Q703)
SW 5V
C ROT SWP (1H, CH1, L, CH2)
IC701 ㊲ PB
IC701 ㊵ REC/PB
IC701 ⑥ REC
IC701 ㊺ REC/PB
IC701 ⑧ REC/PB
IC701 ㊸ PB
IC701 ② REC/PB
IC701 ⑥ ㊺ PB
IC701 ㊽ REC/PB
IC702 ⑤ REC/PB
IC702 ⑧ REC/PB
IC401 ⑫, ⑬ REC/PB
IC801 ㉑, ㉕ PB
IC801 ② PB
IC801 ㉚ REC
IC801 ② REC
IC801 ④ REC
IC801 ⑲ REC/PB
IC801 ⑭ REC
IC001 ⑲ PB

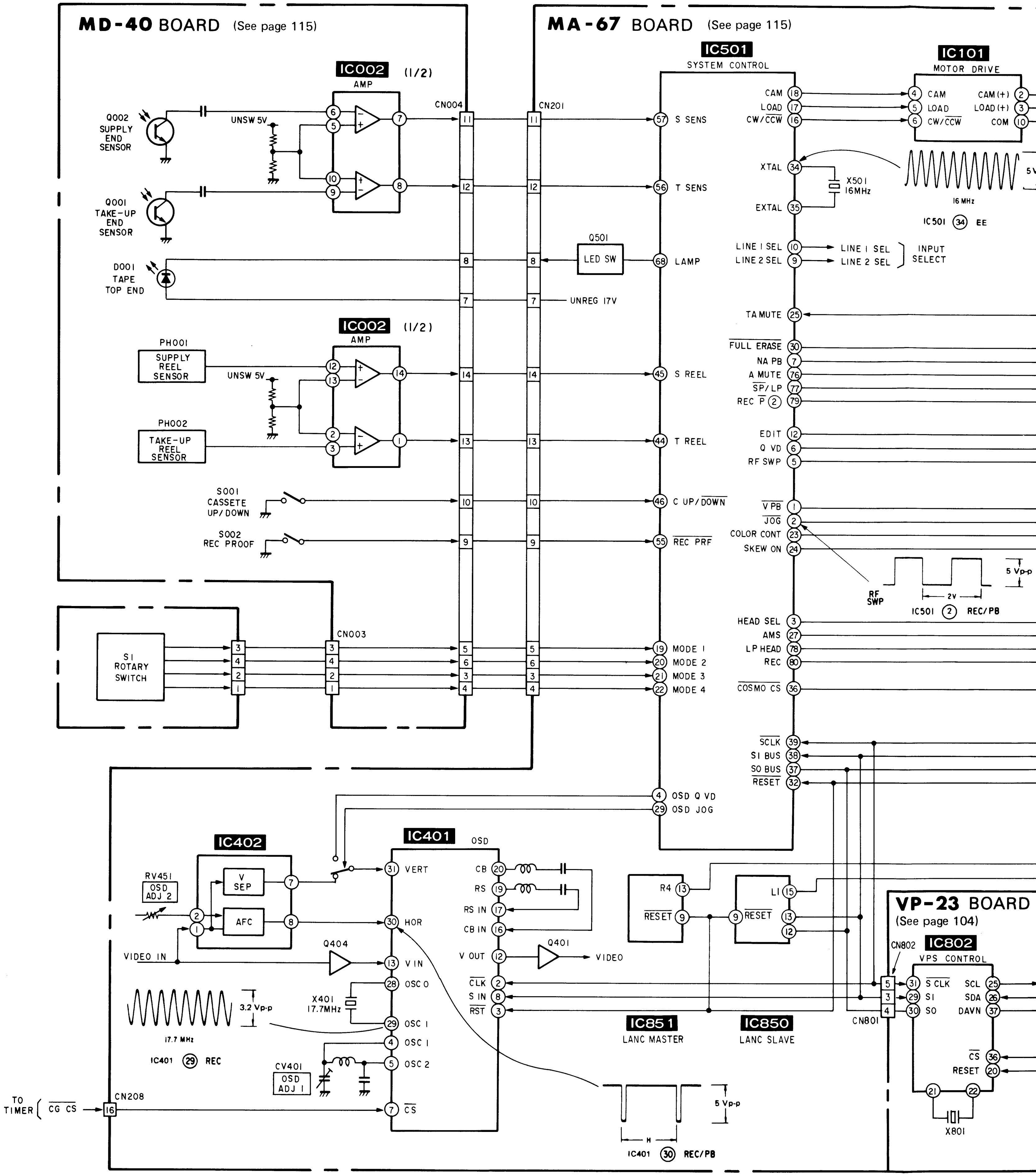

ge 91)
MA-67
BOARD
MF-98
BOARD
RV061
SHARPNESS
CN060
(See page 119)
IC701 48 REC/PB
IC862
SWITCH
Q717,719
BUFFER AMP
AMP
MUTE
VIDEO AMP
EDIT
IC861
0.5H CCD
0.5H
CLK DRIVER
Q703
PB 5V
PB 5V SW
SW 5V
Q880
BUFFER
LPF
Q881,882
AMP
RV861
0.5H CCD LEVEL
V.PB
SYNC SEP
V SYNC SEP
Q883
BUFFER
IC863
SYNC SEP.
CN703
VIDEO OUT
QVD
CN702
EDIT
VPB
COMP SYNC
SYSTEM CONTROL
CN703 VIDEO
VIDEO IN
RF SWP
SYSTEM CONTROL
IC860
0.5H SKEW DET
Q862
SWITCH
Q715,716
SWITCH
LP/SP
SKEW ON
MA-67 BOARD (See page 91)
IC401
OSD
CN206
V IN
V OUT
IC401 12, 13 REC/PB
2.0Vp-p
H
Q640,641
BUFFER
VIDEO OUT
CN216
EURO-AV
(19)
RFU VIDEO OUT (TUNER)
IC600
INPUT SELECT
TU
LINE1
LINE2
TU VIDEO IN (TUNER)
LINE IN
(20)
CN602
MF-98
BOARD
CN061
(See page 119)
LINE IN2 VIDEO
IC801 21, 25 PB
0.48Vp-p
1.2Vp-p
SECAM ACK
SLV-474VP
Q807,808
SECAM
PAL
Q805
BUFFER
DL801
2H COMB FILTER
SLV-474/474UB
PB KILLER AMP
IC860
Q811,812
BUFFER AMP
BM
X 2
0.15 Vp-p
0.7Vp-p
IC801 2 REC
ID DET
COLOR KILLER DET
Q884
SWITCH
COMP SYNC
PB DISCRI
0.42Vp-p
4.43MHz
IC801 14 REC
Q804
AFC/APC TIME CONSTANT
REC/PB SWITCH
PB 5V (Q703)
ACK
COMP SYNC
DET CHROMA
del
COMP
COMP
Q850,851
AMP
IC850
SECAM DET.
CN703
SECAM ACK
SKEW ON
LP/SP
COLOR CONTROL
CN702
DOP
SYSTEM CONTROL

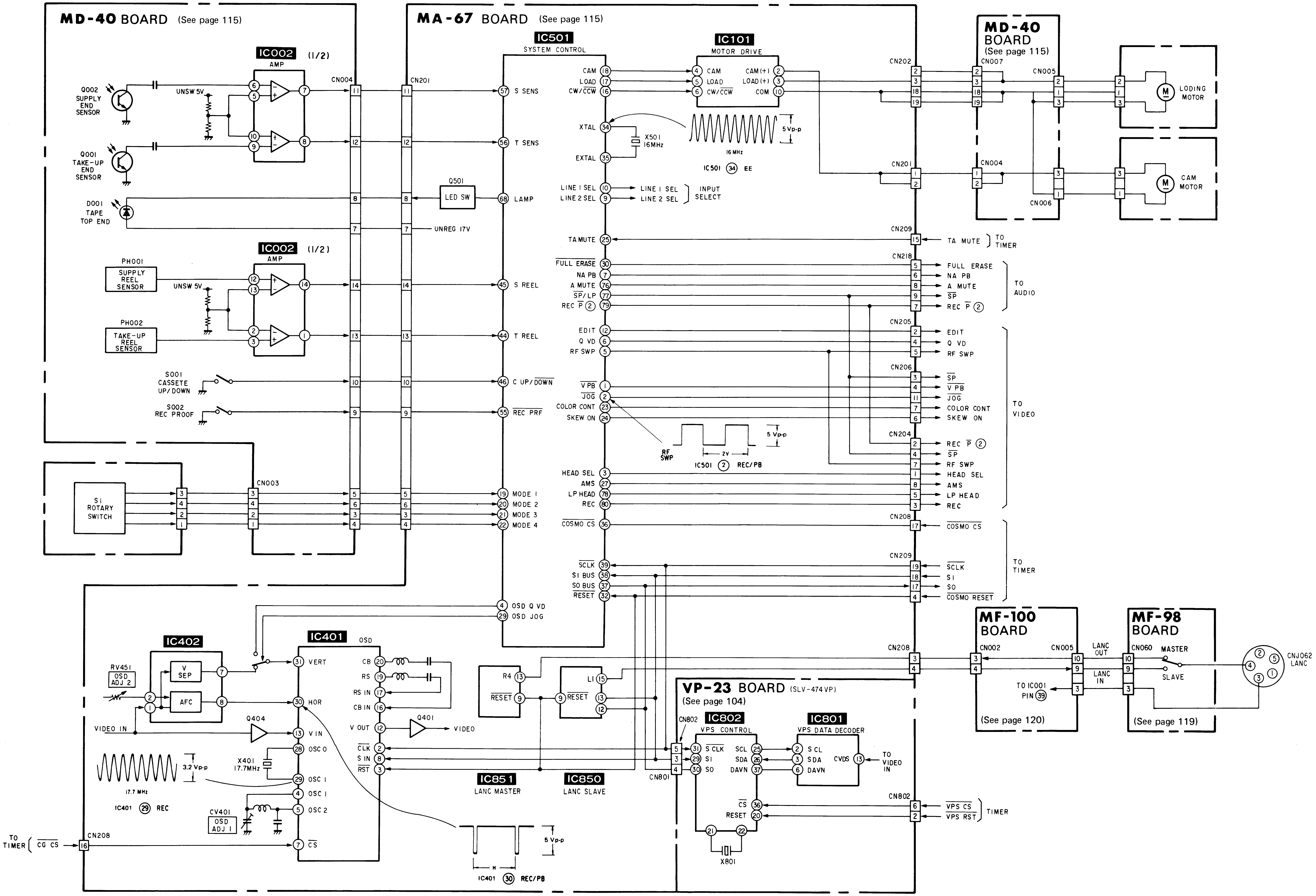
3-4. SERVO BLOCK DIAGRAM


DRUM MOTOR
M1
M2
M3
HALL DEVICE
HE+
HE-
CAPSTAN MOTOR
RM001
CFG1
CFG2
MD-40 BOARD (See page 115)
IC004 (1/2)
CN001
M1
M2
M3
HE+
HE-
FG/PG
SW5V
IC005
CN004
D PG
D FG
CN002
CN007
MA-67 BOARD (See page 91)
5.2Vp-p
2V
IC501 (60) REC/PB
IC501 SERVO
CN201
DRUM PG
DRUM FG
5.1 Vp-p
6.6 msec
IC501 (61) REC/PB
IC103
FG AMP
Q103
CN202
CAP FG
5.0 Vp-p
0.66 msec
IC501 (62) REC/PB
IC302 (1/4)
CONSTANT VOLTAGE
SW5V
REF 2.5V
DRUM D/A
IC302 (1/4)
IC302 (1/4)
CAP STOP
CAP D/A
IC302 (1/4)
Q304
CAP VS AMP
Q301
CAP V
Q302
VS SWITCH
SW12V
STEP PLS
CAP FVS
SW POSITION
RV501
SW POSITION
VIDEO RF
Q201-204
RF INV. DET
VIDEO DOC
CA-43 BOARD (See page 127)
CTL HEAD
CN101
CTL(X)
CTL(Y)
Q014
IC102
IC101
CTL AMP
L
HM
ML
H
Q107
Q101
TP104
CN102
CN203
5.2 Vp-p
2V
REC PB
CTL CTL
IC501 (11), (59) PB
CTL INV
REC CTL
VD CTL
PB CTL
IC502 SYSTEM CONTROL
REC P̄ (1)
CTL(PB)
CTL(PB)
REC P̄
REC P̄ (2)
CS̄
IN
OUT
CLK
RESET
VI REC CTL
HC CONT 1
HC CONT 2
HC CONT 3
CTL TRIGGER
UNSW 5V
COSMO RESET
REC P̄
CS INDEX
S OUT 1
S IN 1
S CLK 1
S CS
COMP SYNC
CN206
COMP SYNC (VIDEO)
2.6 Vp-p
2V
CN203 (9) PB
5.2Vp-p
2V
IC502 (7) REC
2.3 Vp-p
H
IC501 (58) REC/PB


MA-67 BOARD
(See page 91)
IC501 SERVO
DRUM PG
DRUM FG
CAP FG
DRUM D/A
CAP STOP
CAP D/A
CTL INV
REC CTL
VD CTL
PB CTL
CAP V
STEP PLS
CAP RVS
SW POSITION
VIDEO RF
VIDEO DOC
REC P
CS INDEX
S OUT I
S IN I
S CLK I
S CS
COMP SYNC
UNSW 5V
IC501 60 REC/PB
5.2Vp-p
2V
IC501 61 REC/PB
5.1 Vp-p
6.6 msec
IC501 62 REC/PB
5.0 Vp-p
0.66 msec
IC103 FG AMP
Q103
IC502 SYSTEM CONTROL
REC P 1
CTL(PB)
REC P
REC P 2
CS
IN
OUT
CLK
RESET
VI REC CTL
HC CONT 1
HC CONT 2
HC CONT 3
CTL TRIGGER
COSMO RESET
5.2 Vp-p
REC CTL
PB CTL
IC501 11, 59 PB
CN004
D PG
D FG
CN007
CN102
CN201
CN202
CN203
CN206
COMP SYNC (VIDEO)
2.6 Vp-p
CN203 9 PB
IC502 7 REC
5.2Vp-p
IC501 58 REC/PB
2.3 Vp-p
H
IC302 (1/4) CONSTANT VOLTAGE
SW 5V
REF 2.5V
IC302 (1/4)
Q304 CAP VS AMP
Q301
Q302 VS SWITCH
SW 12V
RV501 SW POSITION
Q201-204 RF INV. DET
CN202 DVS
CN202 CVS
CN204
PBC (VIDEO)
MD-40 BOARD
(See page 115)
IC004 (1/2) DRUM MOTOR DRIVE
CN007
ET/DS
ETR
M1
M2
M3
N001
CN002
DRUM MOTOR
CAPSTAN MOTOR
IC001
VC
FRC
U
V
W
U(+)
U(-)
V(+)
V(-)
W(+)
W(-)
VH(+)
VH(-)
HALL DEVISE

3-5. SYSTEM CONTROL BLOCK DIAGRAM


MD-40 BOARD (See page 115)
MA-67 BOARD (See page 115)
IC002 (1/2) AMP
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
D001 TAPE TOP END
UNSW 5V
PH001 SUPPLY REEL SENSOR
PH002 TAKE-UP REEL SENSOR
S001 CASSETE UP/DOWN
S002 REC PROOF
S1 ROTARY SWITCH
CN004
CN003
CN201
Q501 LED SW
UNREG 17V
IC501 SYSTEM CONTROL
S SENS
T SENS
LAMP
S REEL
T REEL
C UP/DOWN
REC PRF
MODE 1
MODE 2
MODE 3
MODE 4
OSD Q VD
OSD JOG
CAM
LOAD
CW/CCW
XTAL
EXTAL
X501 16MHz
LINE 1 SEL
LINE 2 SEL
INPUT SELECT
TA MUTE
FULL ERASE
NA PB
A MUTE
SP/LP
REC P (2)
EDIT
Q VD
RF SWP
V PB
JOG
COLOR CONT
SKEW ON
HEAD SEL
AMS
LP HEAD
REC
COSMO CS
SCLK
SI BUS
SO BUS
RESET
IC101 MOTOR DRIVE
CAM(+)
LOAD(+)
COM
16 MHz
IC501 (34) EE
5 Vp-p
2V
IC501 (2) REC/PB
IC402
V SEP
AFC
RV451 OSD ADJ 2
VIDEO IN
IC401 OSD
VERT
HOR
V IN
OSC O
OSC I
OSC 2
CS
CB
RS
RS IN
CB IN
V OUT
CLK
S IN
RST
Q404
Q401
VIDEO
X401 17.7MHz
3.2 Vp-p
17.7 MHz
IC401 (29) REC
CV401 OSD ADJ 1
TO TIMER
CG CS
CN208
R4
RESET
LI
IC851 LANC MASTER
IC850 LANC SLAVE
5 Vp-p
H
IC401 (30) REC/PB
VP-23 BOARD (See page 104)
CN802
CN801
IC802 VPS CONTROL
S CLK
SI
SO
SCL
SDA
DAVN
CS
RESET
X801


MD-40 BOARD (See page 115)
IC002 (1/2) AMP
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
D001 TAPE TOP END
UNSW 5V
PH001 SUPPLY REEL SENSOR
PH002 TAKE-UP REEL SENSOR
S001 CASSETE UP/DOWN
S002 REC PROOF
S1 ROTARY SWITCH
CN003
CN004
MA-67 BOARD (See page 115)
CN201
IC501 SYSTEM CONTROL
S SENS
T SENS
Q501 LED SW
LAMP
UNREG 17V
S REEL
T REEL
C UP/DOWN
REC PRF
MODE 1
MODE 2
MODE 3
MODE 4
OSD Q VD
OSD JOG
CAM
LOAD
CW/CCW
XTAL
EXTAL
X501 16MHz
16 MHz
5 Vp-p
IC501 (34) EE
LINE 1 SEL
LINE 2 SEL
INPUT SELECT
TA MUTE
FULL ERASE
NA PB
A MUTE
SP/LP
REC P (2)
EDIT
Q VD
RF SWP
V PB
JOG
COLOR CONT
SKEW ON
RF SWP
2V
IC501 (2) REC/PB
HEAD SEL
AMS
LP HEAD
REC
COSMO CS
SCLK
SI BUS
SO BUS
RESET
IC101 MOTOR DRIVE
CAM (+)
LOAD (+)
COM
CN202
CN201
CN209
TA MUTE
TO TIMER
CN218
FULL ERASE
NA PB
A MUTE
SP
REC P (2)
TO AUDIO
CN205
EDIT
Q VD
RF SWP
CN206
SP
V PB
JOG
COLOR CONT
SKEW ON
TO VIDEO
CN204
REC P (2)
SP
RF SWP
HEAD SEL
AMS
LP HEAD
REC
CN208
COSMO CS
CN209
SCLK
SI
SO
COSMO RESET
TO TIMER
MD-40 BOARD (See page 115)
CN007
CN005
CN004
CN006
LODING MOTOR
CAM MOTOR
IC402
RV451 OSD ADJ 2
V SEP
AFC
VIDEO IN
Q404
X401 17.7MHz
3.2 Vp-p
17.7 MHz
IC401 (29) REC
CV401 OSD ADJ 1
TO TIMER
CG CS
CN208
IC401 OSD
VERT
HOR
V IN
OSC 0
OSC 1
OSC 1
OSC 2
CS
CB
RS
RS IN
CB IN
V OUT
CLK
S IN
RST
Q401
VIDEO
H
5 Vp-p
IC401 (30) REC/PB
R4
RESET
L1
IC851 LANC MASTER
IC850 LANC SLAVE
CN801
VP-23 BOARD (SLV-474VP) (See page 104)
CN802
IC802 VPS CONTROL
S CLK
SI
SO
SCL
SDA
DAVN
CS
RESET
X801
IC801 VPS DATA DECODER
S CL
S DA
DAVN
CVDS
TO VIDEO IN
CN802
VPS CS
VPS RST
TIMER
MF-100 BOARD (See page 120)
CN002
CN005
LANC OUT
LANC IN
TO IC001 PIN (39)
MF-98 BOARD (See page 119)
CN060
MASTER
SLAVE
CNJ062 LANC

3-6. SYSTEM CONTROL – VIDEO BLOCK INTERFACE

Signal Name	Pin No.	I/O	STOP/FF/REW	TAPE LOADING	TAPE UNLOADING	PB	PB·PAUSE	SLOW	x2	CUE	REVIEW	REC	REC·PAUSE	–x1	–x2
V PB	MA-67 BOARD IC501 ①	O	H	H	H	L	L	L	L	L	L	H	H	L	L
HEAD SEL	MA-67 BOARD IC501 ③	O	L	L	L	L	H	*1	H	L	L	H	H	L	H
RF SW P	MA-67 BOARD IC501 5	O	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
Q VD/V MUTE	MA-67 BOARD IC501 ⑥	O	L	L	L	*3	*4	*4	*4	*4	*4	L	L	*4	*4
EDIT	MA-67 BOARD IC501 ⑫	O	L	L	L	*5	*5	*5	*5	*5	*5	*5	L	*5	*5
AMS	MA-67 BOARD IC501 ㉗	O	L	L	L	L	L	*6	L	*7	*7	L	L	*7	*7
$\overline{SP}$/LP	MA-67 BOARD IC501 (77)	O	*8	*8	*8	*9	*9	*9	*9	*9	*9	*8	*8	*9	*9
LP HEAD	MA-67 BOARD IC501 (78)	O	*8	*8	*8	*9	L	L	L	L	L	*8	*8	L	L
REC/$\overline{P}$	MA-67 BOARD IC501 (79)	O	L	L	L	L	L	L	L	L	L	H	L	L	L
REC	MA-67 BOARD IC501 (80)	O	L	L	L	L	L	L	L	L	L	H	H	L	L
COMP SYNC	MA-67 BOARD IC501 (58)	I	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10
SKEW ON	MA-67 BOARD IC501 ㉔	O	L	L	L	L	L	L	L	*11	*11	L	L	*11	*11
COLOR CONT	MA-67 BOARD IC501 ㉓	O	L	L	L	L	*12	*13	*12	*11	*11	L	L	*11	*11

*1. "H" when the tape stops, and "L" when it runs (for approx. 40 msec).
*2. Synchronized with drum rotation. 25 Hz 50% duty pulse.
*3. Normally "L". "H" when CTL single is not played back.
*4. V-cycle "H" pulse.
*5. Normally "L". "H" during EDIT mode.
*6. HI-Z when the tape runs reverse during SP mode "L" the other conditions.
*7. HI-Z (2.5 V) during SP mode, or "L" during LP mode.
*8. By SP/LP selector, "L" during SP mode, or "H" during LP mode.
*9. By the mode on the recorded tape, "L" when it is SP mode, or "H" when "LP" mode.
*10. Composite sync. signal (positive polarity).
*11. "H" during LP mode.
*12. HI-Z during LP mode.
*13. HI-Z when the tapes STOP during LP mode "L" the other conditions.

3-7. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE

Signal Name	Pin No.	I/O	STOP	FF	REW	TAPE LOADING	TAPE UNLOADING	PB	PB• PAUSE	SLOW	×2	CUE	REVIEW	REC	REC• PAUSE
REC CTL *1	MA-67 BOARD IC501 ⑪	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
CAP STOP	MA-67 BOARD IC501 (67)	O	H	L	L	L	L	L	H	H	L	L	L	L	H
$\overline{\text{STEP PLS}}$	MA-67 BOARD IC501 ㉘	O	H	H	H	H	H	H	H	*2	H	H	H	H	H
CAP V *3	MA-67 BOARD IC501 ㊼	I													
SW POSITION *4	MA-67 BOARD IC501 (51)	I													
$\overline{\text{PB CTL}}$	MA-67 BOARD IC501 (59)	I	H	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H
VD CTL	MA-67 BOARD IC501 (69)	I	H	*6	*6			*1	H	*2	*6	*6	*6	*1	H
DRUM PG	MA-67 BOARD IC501 (60)	I	L	L	L	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7
DRUM FG	MA-67 BOARD IC501 (61)	I	L	L	L	*5	*5	*8	*8	*8	*8	*8	*8	*8	*8
CAP FG	MA-67 BOARD IC501 (62)	I	H/L	*6	*6	*5	*5	*6	H/L	*9	*6	*6	*6	*6	H/L
INDEX $\overline{\text{CS}}$	MA-67 BOARD IC501 (63)	O							*10						
CAP RVS	MA-67 BOARD IC501 (64)	O	H	L	H	L	H	L	L	*2	L	L	H	L	L
CAP DA *14	MA-67 BOARD IC501 (65)	O	*11	L	L	*11	*11	*12	*11	*11	*12	*12	*12	*12	*11
DRUM DA *14	MA-67 BOARD IC501 (66)	O	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13	*13
REC•$\overline{\text{P}}$	MA-67 BOARD IC501 (79)	O	L	L	L	L	L	L	L	L	L	L	L	H	L

*1. 25 Hz pulse.

*2. "L"pulse when the tape runs.

*3. Input terminal for capstan constant-voltage drive.
Used in the FF/REW mode and for cassette loading/unloading.

*4. Input terminal for switching position sdjustment.

*5. Indefinite cycle pulse.

*6. Cycle pulse proportional to a tape speed.

*7. 25 Hz "H" pulse.

*8. 300 Hz pulse.

*9. Tape run time pulse.

*10. V-cycle "L" pulse.

*11. "H" or "L" pulse in a cycle of approx. 2 msec.

*12. "H" or "L" pulse in a cycle of approx. 1.5 msec.

*13. "H" or "L" pulse in a cycle of approx. 3 msec.

*14. 3-value output of "H", "L" and HI-Z (2.5V).

3-8. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE

Signal Name	Pin No.	I/O	HI-SPEED REW	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE LOADING	TAPE UNLOADING	STOP	FF	REW	PB	PB• PAUSE	SLOW	×2	CUE	REVIEW	REC	REC PAUSE
CAM *1	MA-67 BOARD IC501 ⑱	O	L	L	L	L	H	H	L	L	L	L	L	L	L	L	L	L	L
LOAD	MA-67 BOARD IC501 ⑰	O	L	L	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L
CW/$\overline{\text{CCW}}$	MA-67 BOARD IC501 ⑯	O			H	L	H	L											
MODE 1	MA-67 BOARD IC501 ⑲	I	H	L	L	L	H	H	L	H	H	H	L	L	H	H	H	H	H
MODE2	MA-67 BOARD IC501 ⑳	I	L	H	H	H	H	H	L	L	L	L	H	H	L	L	L	L	H
MODE 3	MA-67 BOARD IC501 ㉑	I	H	H	H	H	L	L	L	L	L	H	H	H	H	H	L	H	H
MODE 4	MA-67 BOARD IC501 ㉒	I	H	H	H	H	H	H	L	H	H	L	L	L	L	L	L	L	L
REC PRF	MA-67 BOARD IC501 (55)	I	*2	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
C-UP/$\overline{\text{DOWN}}$	MA-67 BOARD IC501 ㊻	I	L	H	H→L	H→L	L	L	L	L	L	L	L	L	L	L	L	L	L
T REEL	MA-67 BOARD IC501 ㊹	I	*3	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
S REEL	MA-67 BOARD IC501 ㊺	I	*3	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
LAMP	MA-67 BOARD IC501 (68)	O	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP V	MA-67 BOARD IC501 ㊼	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
CAP STOP	MA-67 BOARD IC501 (67)	O	L	H			L	L	H	L	L	L	H	H	L	L	L	L	H
CAP RVS	MA-67 BOARD IC501 (64)	O	H	H			L	H	H/L	L	H	L	L	L	L	L	H	L	L
CAP DA *8	MA-67 BOARD IC501 (65)	O																	
T SENS	MA-67 BOARD IC501 (56)	I	*7	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	MA-67 BOARD IC501 (57)	I	*7	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. "H" when progressing to the MECHA mode.
*2. "L" when a cassette erasure preventive finger is bent, and "H" when not bent.
*3. Cycle pulse proportional to a reel speed.
*4. "H" pulse in a cycle of approx. 2 msec.
*6. Input terminal for capstant constant-voltage drive.
Used in the FF/REW mode and for cassette loading/unloading.
*7. Narmally "L", "H" pulse in a cycle of 2 msec. when tape top or tape end is detected.
*8. 3-value output of "H", "L" and HI-Z (2.5V).

3-9. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE

Signal Name	Pin No.	I/O	I/O LEVEL
$\overline{\text{RESET}}$	MA-67 BOARD IC501 ㉜	I	Normally "H". Set to "L" when a power failure is delected or power is restored.
$\overline{\text{COSMO CS}}$	MA-67 BOARD IC501 ㊱	I	Chip select signal from the timer microcomputer (MF-97 board IC001). V-cycle "L" pulse.
SI BUS	MA-67 BOARD IC501 ㊲	I	Serial communication data from the timer microcomputer. V-cycle "L" pulse.
SO BUS	MA-67 BOARD IC501 ㊳	O	Serial communication data to the timer microcomputer. V-cycle "L" pulse.
$\overline{\text{S CLK}}$	MA-67 BOARD IC501 ㊴	O	Serial communication clock to the timer microcomputer. V-cycle "L" pulse.
S IN 1	MA-67 BOARD IC501 ㊶	I	Serial communication data from the INDEX IC (IC502). V-cycle "L" pulse.
S OUT 1	MA-67 BOARD IC501 ㊷	O	Serial communication data to the INDEX IC. V-cycle "L" pulse.
S CLK 1	MA-67 BOARD IC501 ㊸	O	Serial communication clock to the INDEX IC. V-cycle "L" pulse.
$\overline{\text{CS INDEX}}$	MA-67 BOARD IC501 (63)	O	Chip select signal to the INDEX IC (IC502). V-cycle "L" pulse.

3-10. SYSTEM CONTROL – AUDIO BLOCK INTERFACE

Signal Name	Pin No.	I/O	STOP/ FF/REW	TAPE LOADING	TAPE UNLOADING	PB	PB• PAUSE	SLOW	×2	CUE	REVIEW	REC	REC PAUSE	–×1	–×2
NA•PB	MA-67 BOARD IC501 ⑦	O	L	L	L	H	H	H	H	H	H	L	L		
A MUTE	MA-67 BOARD IC501 (76)	O	L	L	L	*1	H	H	H	H	H	L	L	H	H
SP/LP	MA-67 BOARD IC501 (77)	O	*2	*2	*2	*3	*3	*3	*3	*3	*3	*2	*2	L	*3
REC/$\overline{\text{P}}$	MA-67 BOARD IC501 (79)	O	L	L	L	L	L	L	L	L	L	H	L	H	L

*1. "H" when CTL signal is not played back.

*2. By SP/LP selector, "L" during SP mode, or "H" during LP mode.

*3. By the mode on the recorded tape, "L" when it is SP mode, or "H" when "LP" mode.

3-11. SYSTEM CONTROL MICROCOMPUTER (CXP80116: IC501 on MA-67 Board) PORT FUNCTIONS DESCRIPTION

Port	Pin No.	Signal	I/O	Description
PA0	2	$\overline{\text{JOG}}$	O	L in viariable speed
PA1	1	$\overline{\text{V-PB}}$	O	L in PB mode
PA2	80	REC	O	H in REC or REC-PAUSE mode
PA3	79	REC/$\overline{\text{P}}$	O	H during record
PA4	78	LP HEAD	O	LP head select signal
PA5	77	$\overline{\text{SP}}$/LP	O	L in SP mode
PA6	76	A-MUTE	O	Audio mute signal
PA7	75	$\overline{\text{TV}}$/VTR	O	TV/VTR selection
PB0	10	LINE1	O	Input control 1
PB1	9	LINE2	O	Input control 2
PB2	8	NC	O	
PB3	7	NA-PB	O	Normal audio PB
PB4	6	Q-VD/V MUTE	O	Quasi VD signal/V mute
PB5	5	RF-SWP	O	RF switching pulse
PB6	4	OSD-VD	O	Quasi VD for OSD (This is different logically from the quasi VD.)
PB7	3	HEAD-SEL	O	Head select signal
PC0	18	CAM	O	Cam select signal
PC1	17	LOAD	O	Load select signal
PC2	16	CW/$\overline{\text{CCW}}$	O	Rotation direction set
PC3	15	CTL-INV	O	CTL inversion
PC4	14	NC	O	
PC5	13	NC	O	
PC6	12	EDIT	O	H during edit
PC7	11	REC-CTL	O	REC CTL output

Port	Pin No.	Signal	I/O	Description
PD0	26	NC	O	
PD1	25	TA-MUTE	I	Tuner audio mute signal input
PD2	24	SKEW ON	O	Picture control while SKEW
PD3	23	COLOR CONT	O	Color control while JOG
PD4	22	MODE4	I	MD encoder input (MSB) ↕ (LSB)
PD5	21	MODE3	I	
PD6	20	MODE2	I	
PD7	19	MODE1	I	
PE0	70	$\overline{\text{DEW}}$	I	DEW sensor input
PE1	69	VD-CTL	I	CTL counter input
PE2	68	LAMP	O	End sensor lamp signal
PE3	67	CAPSTOP	O	Capstan ON/OFF
PE4	66	DRM-DA	O	Drum DA output
PE5	65	CAP-DA	O	Capstan DA output
PE6	64	CAP-RVS	O	Capstan inversion
PE7	63	$\overline{\text{CS INDEX}}$	O	INDEX μcom chip select
PF0	47	CAP-V	I	Capstan constant voltage FB input
PF1	46	C-UP/DWN	I	Cassette UP/DOWN
PF2	45	S-REEL	I	S reel FG
PF3	44	T-REEL	I	T reel FG
PH0	30	$\overline{\text{FULL-ERASE}}$	O	Full erase ON
PH1	29	OSD JOG	O	OSD-VD signal select
PH2	28	$\overline{\text{STEP-PLS}}$	O	Step pulse output
PH3	27	AMS	O	AMS control

ally

Port	Pin No.	Signal	I/O	Description
PD0	26	NC	O	
PD1	25	TA-MUTE	I	Tuner audio mute signal input
PD2	24	SKEW ON	O	Picture control while SKEW
PD3	23	COLOR CONT	O	Color control while JOG
PD4	22	MODE4	I	MD encoder input (MSB) ↕ (LSB)
PD5	21	MODE3	I	
PD6	20	MODE2	I	
PD7	19	MODE1	I	
PE0	70	$\overline{\text{DEW}}$	I	DEW sensor input
PE1	69	VD-CTL	I	CTL counter input
PE2	68	LAMP	O	End sensor lamp signal
PE3	67	CAPSTOP	O	Capstan ON/OFF
PE4	66	DRM-DA	O	Drum DA output
PE5	65	CAP-DA	O	Capstan DA output
PE6	64	CAP-RVS	O	Capstan inversion
PE7	63	$\overline{\text{CS INDEX}}$	O	INDEX μcom chip select
PF0	47	CAP-V	I	Capstan constant voltage FB input
PF1	46	C-UP/DWN	I	Cassette UP/DOWN
PF2	45	S-REEL	I	S reel FG
PF3	44	T-REEL	I	T reel FG
PH0	30	$\overline{\text{FULL-ERASE}}$	O	Full erase ON
PH1	29	OSD JOG	O	OSD-VD signal select
PH2	28	$\overline{\text{STEP-PLS}}$	O	Step pulse output
PH3	27	AMS	O	AMS control

Port	Pin No.	Signal	I/O	Description
PG0	62	CAP-FG	I	Capstan FG input
PG1	61	DRM-FG	I	Drum FG input
PG2	60	DRM-PG	I	Drum PG input
PG3	59	PB-CTL	I	PB-CTL input
PG4	58	COMP-SYNC	I	Composite sync input
PG5	57	S-SENS	I	S end sensor
PG6	56	T-SENS	I	T end sensor
PG7	55	$\overline{\text{REC-PRF}}$	I	REC-PROOF switch
AN0	51	SW-POSI	I	Switch position adjustment
AN1	50	NC	I	
AN2	49	VIDEO-RF	I	Video RF input
AN3	48	VIDEO-DOC	I	Video DOC input (Not used)
CS0	36	$\overline{\text{COSMO CS}}$	I	Serial line for TT handshake
SI0	37	SI BUS	I	
SO0	38	SO BUS	O	
SCK0	39	$\overline{\text{S CLK}}$	I	
CS1	40	S CS1	I	Serial line for INDEX handshake
SI1	41	S IN1	I	
SO1	42	S OUT1	O	
SCK1	43	S CLK1	O	
AVDD	54	AVDD	–	A/D converter. Positive power supply terminal
AVREF	53	AVREF	I	A/D converter. Reference voltage input
AVSS	52	AVSS	–	A/D converter. GND
VDD	72	VDD	–	Positive power supply terminal
VSS	33/73	VSS	–	GND
EXTAL	35	EXTAL	I	System clock. 16 MHz crystal
XTAL	34	XTAL	O	
$\overline{\text{PST}}$	32	$\overline{\text{RESET}}$	I	Reset input
MP	31	MP	I	Microprocessor mode input (L always set)
NMI	71	NMI	I	Non-maskable interruption input (H in no use)

3-12. MODE CONTROL MICROCOMPUTER (CXP50116: IC001 on MF-100 Board) PORT FUNCTION DESCRIPTION

Port	Pin No.	Signal	I/O	Description
VDD	34	VDD	–	Positive power supply terminal
Vss	71	Vss	–	GND
EXTAL	74	EXTAL	I	Clock input (4.194304 MHz)
XTAL	72	XTAL	O	Clock output
TEX	31	TEX	I	Backup clock input (32.768 kHz)
TX	30	TX	O	Backup clock output
PA3	50	C+ DET	I	C+ DETECT input
PA2	49	DIST1	I	Destination setting port (MSB) ↕ (LSB)
PA1	48	DIST0	I	
PA0	47	$\overline{\text{H-DET}}$	I	VIDEO H-sync DETECT input
PC3	70	$\overline{\text{CG-CS}}$	O	OSD CS signal
PC2	69	$\overline{\text{COSMO-CS}}$	O	COSMO CS signal
PC1	68	$\overline{\text{VPS-CS}}$	O	VPS CS signal
PC0	67	$\overline{\text{VPS-RESET}}$	O	VPS RESET signal
PD3	66	MEM-CLK	O	EEP-ROM clock signal
PD2	65	MEM-CS	O	EEP-ROM CHIP-SEL signal
PD1	64	POWER-ON	O	Power control (H when the power is on.)
PD0	63	$\overline{\text{COSMO-RST}}$	O	COSMO reset signal
PE3	58	MEM-DATA	I/O	EEP-ROM data signal
PE2	57	NC	I	
PE1	56	AFT-UP	I	Tuner AFT-UP signal
PE0	55	AFT-DOWN	I	Tuner AFT-DOWN signal
PF3	54	PLL-CLK	O	FS tuner clock output
PF2	53	PLL-LATCH	O	FS tuner latch output
PF1	52	PLL-DATA	O	FS tuner data output
PF0	51	TA-MUTE	O	Tuner audio mute

Port	Pin No.	Signal	I/O	Description
PH3	80	C+ ON	O	C+ ON/OFF
PH2	79	AV CTRL	O	AV control
PH1	78	TUNER SEL	O	TUNER select
PH0	77	TV OUT SEL	O	AV output select
PY3	62	SIRCS-IN	I	Remote control input
PY2	61	POWER-FAIL	I	Service interruption detection
PY1	60	BUZZER	O	Buzzer signal
PY0	59	VH U/$\overline{\text{VL}}$	O	Tuner band select
AD7	42	AD7	OUTPUT	Key input reading A/D (including shuttle switch)
AD6	41	AD6		
AD5	40	AD5		
AD4	39	AD4		
AD3	38	AD3		
AD2	37	AD2		
AD1	36	AD1		
AD0	35	AD0		
T9	19	T9	OUT	FIP grid signal
|	|	|		
T0	28	T0		
S21	18	S17	O	(Not used)
S20	17	S16	OUTPUT	FIP segment signal
|	|	|		
S4	1	S0		
VFDP	76	VFDP	I	Power supply for FDP
VREF	75	VREF	I	Reference voltage for resetting circuit (to Vdd)

Port
$\overline{\text{EC}}$
INT
$\overline{\text{RESET}}$
$\overline{\text{SC}}$
SO
SI

● A/D PORT

- The A/D p

AD
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7

- KEY inpu
- Chattering 30 msec.
- Remote c

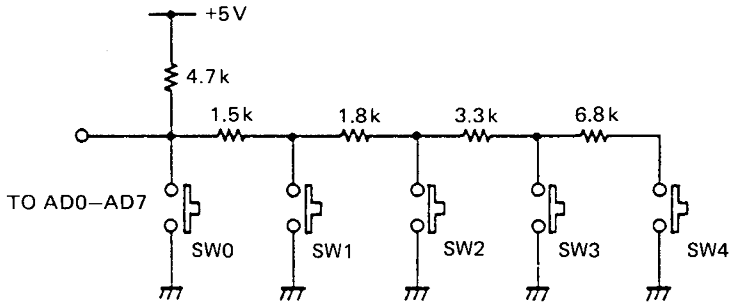
Remote
R.
R.

Port	Pin No.	Signal	I/O	Description
PH3	80	C+ ON	O	C+ ON/OFF
PH2	79	AV CTRL	O	AV control
PH1	78	TUNER SEL	O	TUNER select
PH0	77	TV OUT SEL	O	AV output select
PY3	62	SIRCS-IN	I	Remote control input
PY2	61	POWER-FAIL	I	Service interruption detection
PY1	60	BUZZER	O	Buzzer signal
PY0	59	VH U/$\overline{\text{VL}}$	O	Tuner band select
AD7	42	AD7	OUTPUT	Key input reading A/D (including shuttle switch)
AD6	41	AD6		
AD5	40	AD5		
AD4	39	AD4		
AD3	38	AD3		
AD2	37	AD2		
AD1	36	AD1		
AD0	35	AD0		
T9	19	T9	OUT	FIP grid signal
|	|	|		
T0	28	T0		
S21	18	S17	O	(Not used)
S20	17	S16	OUTPUT	FIP segment signal
|	|	|		
S4	1	S0		
VFDP	76	VFDP	I	Power supply for FDP
VREF	75	VREF	I	Reference voltage for resetting circuit (to Vdd)

Port	Pin No.	Signal	I/O	Description
$\overline{\text{EC}}$	43		I	Event count input (Not used)
INT	29		I	Interruption from externals (Not used)
$\overline{\text{RESET}}$	32	$\overline{\text{RESET}}$	I	Reset input
$\overline{\text{SC}}$	44	SCLK	O	Serial bus clock output
SO	45	SO (from TT)	O	Serial bus SOUT
SI	46	SI (to TT)	I	Serial bus SIN

● A/D PORT ALLOCATION

- The A/D ports are allocated as shown below.

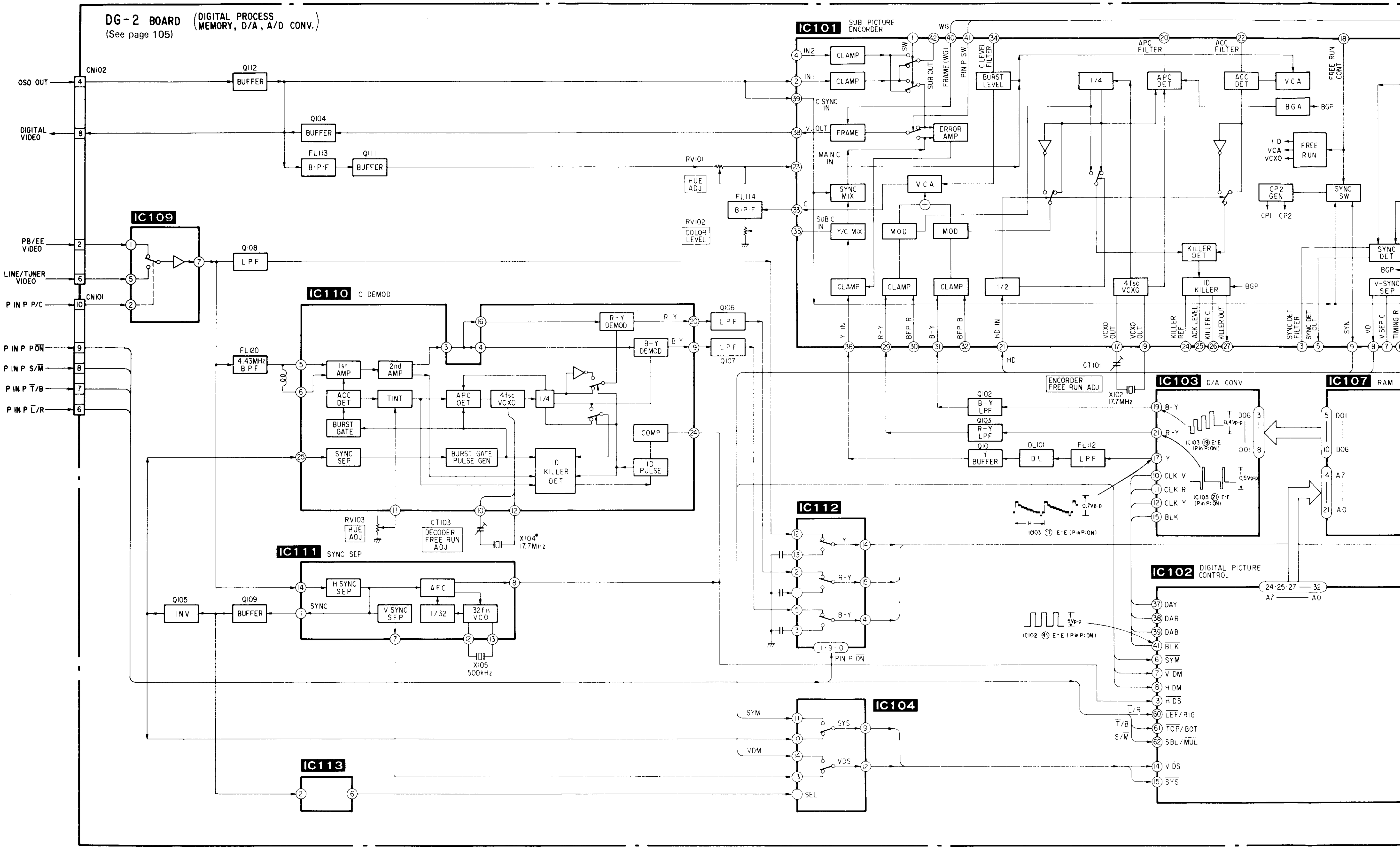


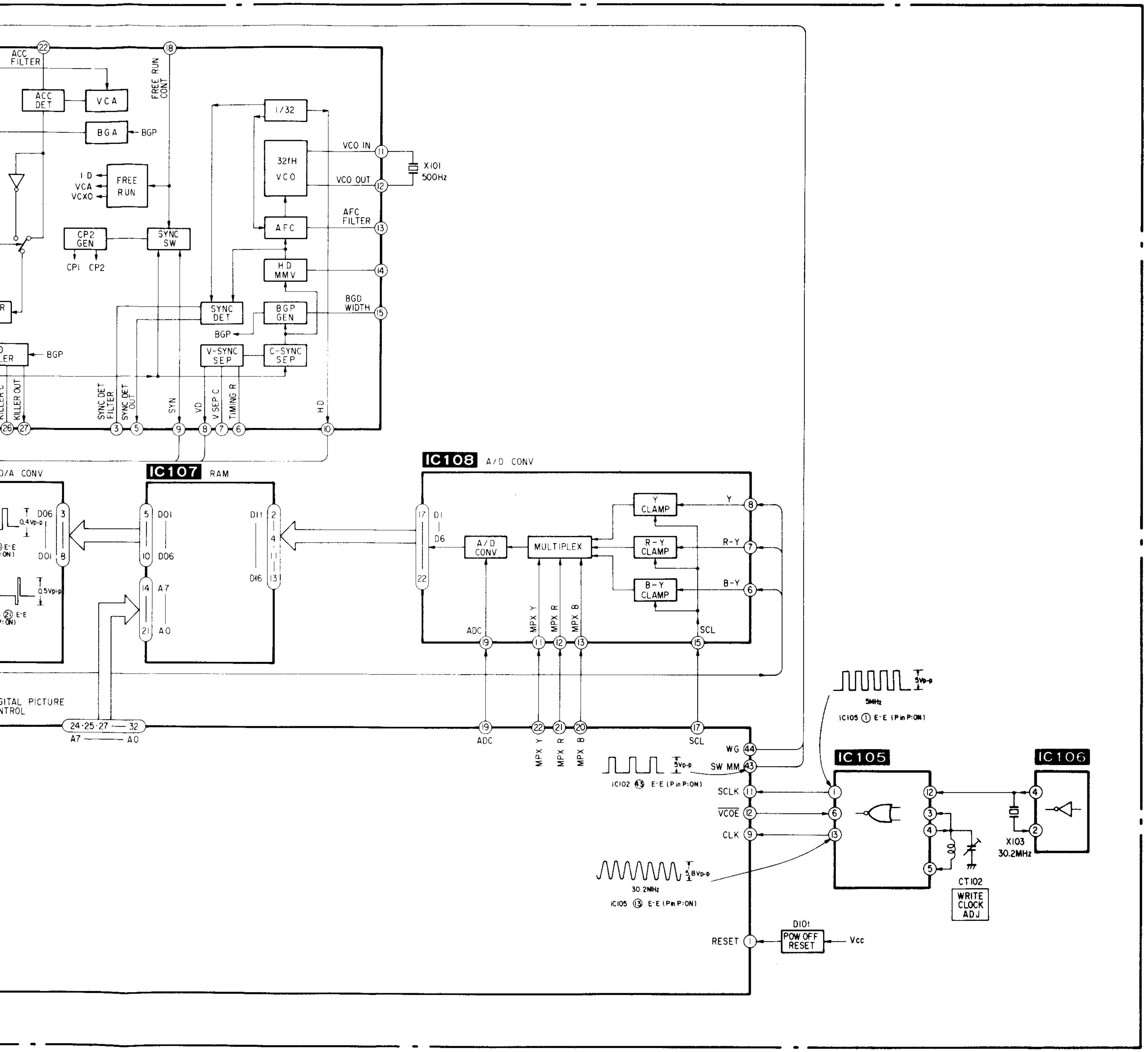
SW AD	Pin No.	SW0 0.00 [V]	SW1 1.21 [V]	SW2 2.06 [V]	SW3 2.92 [V]	SW4 3.70 [V]
AD0	35	RING0	VPS	TEST	R. MODE1	R. MODE2
AD1	36	RING1	–	–	–	–
AD2	37	RING2	–	–	–	–
AD3	38	FWD/RVS	PAUSE	–	–	–
AD4	39	STOP	PLAY	POWER	EJECT	–
AD5	40	REC	AUTO/MENU	TRACK (-)	POS (+)	TV/VTR
AD6	41	H. speed REW	QUICK TMR	TRACK (+)	POS (-)	–
AD7	42	–	TMR ON/OFF	INPUT SEL	EDIT	SP/LP

- KEY input signals pass through the A/D ports as shown above.
- Chattering-cancel time is 30 msec. KEY input is assumed when there are two input signals of the same voltage within 30 msec.
- Remote control modes are selected by R. MODE 1/2.

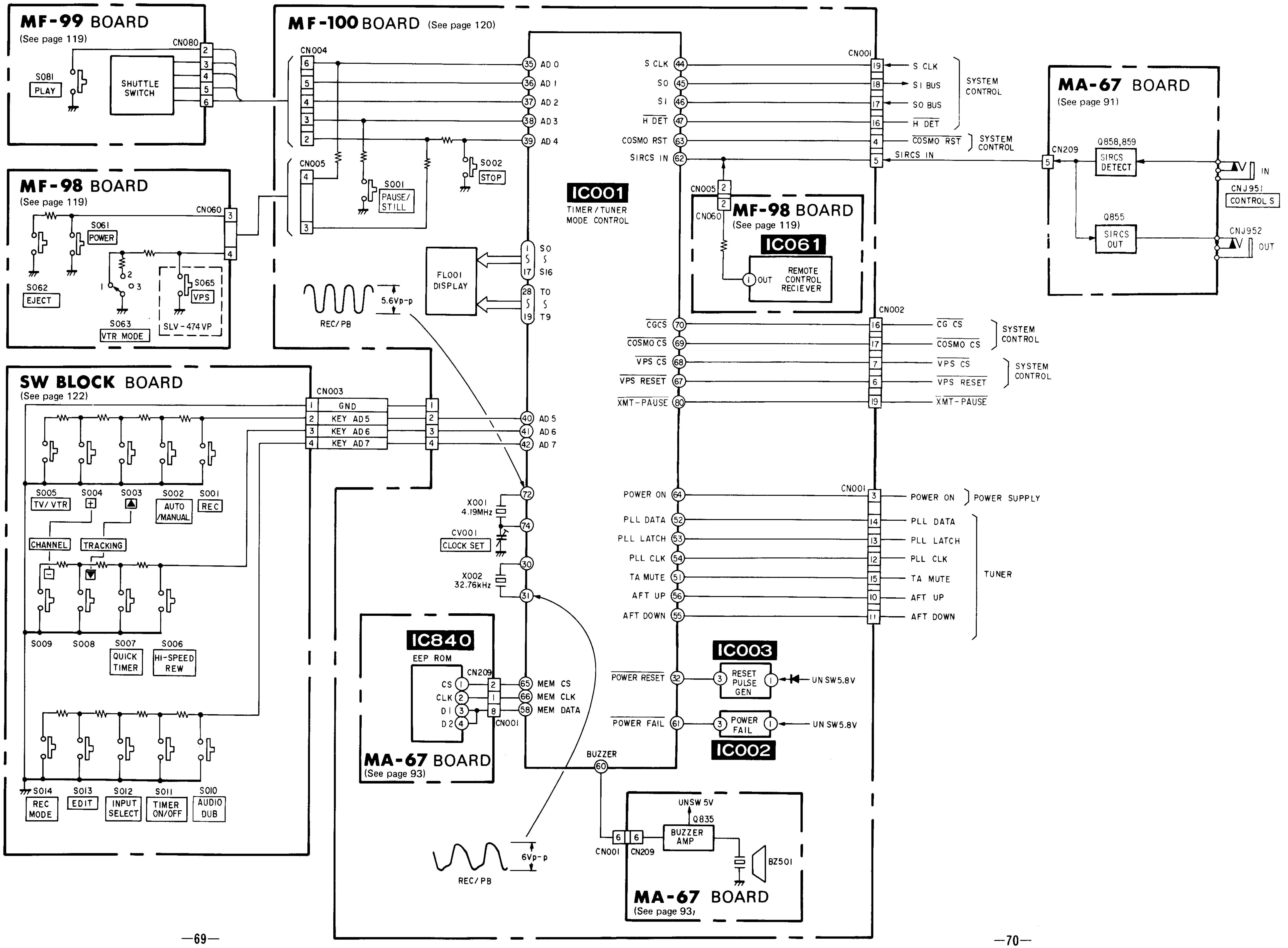
Remote control mode	VTR1	VTR2	VTR3
R. MODE1	make	brake	brake
R. MODE2	brake	make	brake

3-13. DIGITAL PROCESS BLOCK DIAGRAM

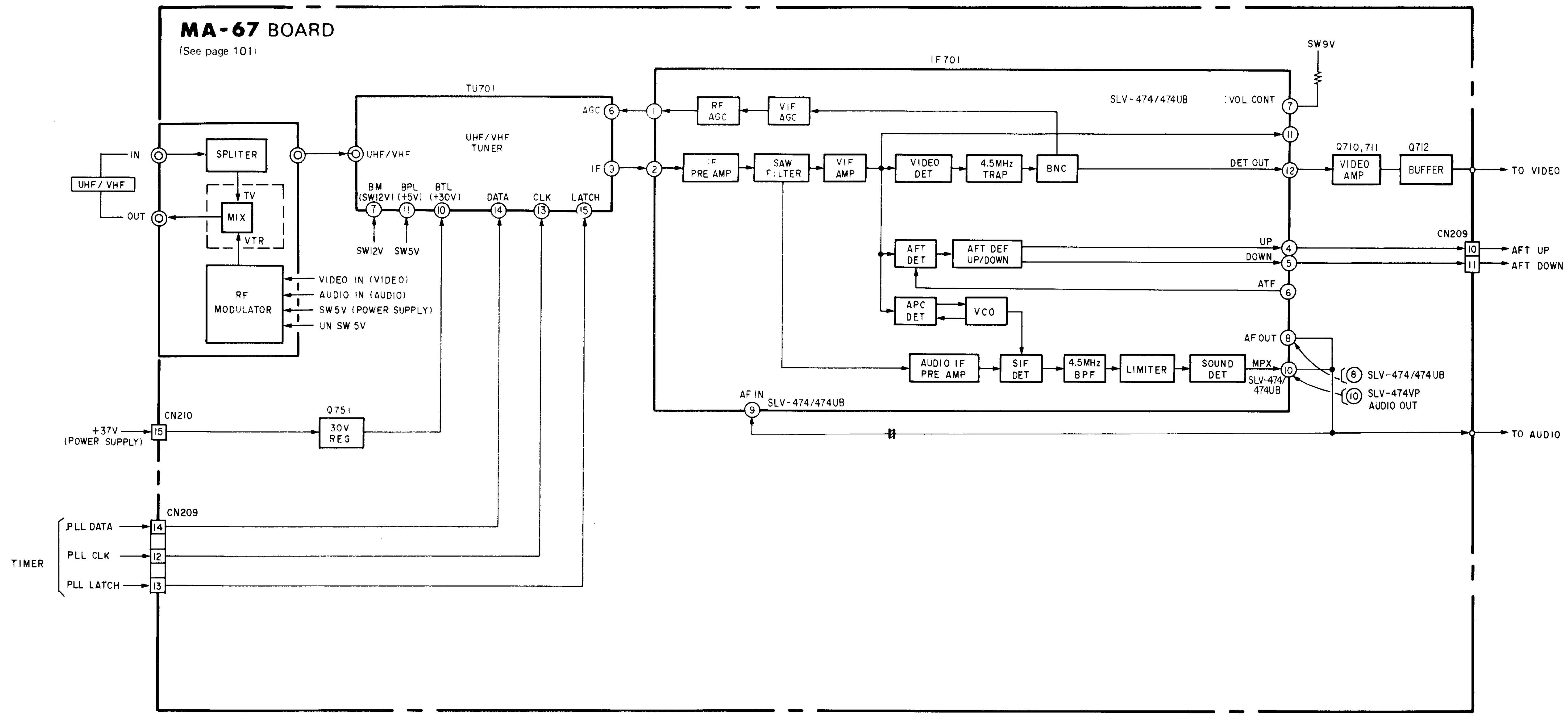

DG-2 BOARD (DIGITAL PROCESS MEMORY, D/A, A/D CONV.)
(See page 105)
CN102
OSD OUT
DIGITAL VIDEO
PB/EE VIDEO
LINE/TUNER VIDEO
P IN P P/C
CN101
P IN P PON
P IN P S/M
P IN P T/B
P IN P L/R
Q112 BUFFER
Q104 BUFFER
FL113 B·P·F
Q111 BUFFER
IC109
Q108 LPF
IC110 C DEMOD
FL120 4.43MHz BPF
1st AMP
2nd AMP
ACC DET
TINT
APC DET
4fsc VCXO
1/4
BURST GATE
SYNC SEP
BURST GATE PULSE GEN
ID KILLER DET
COMP
ID PULSE
R-Y DEMOD
B-Y DEMOD
Q106 LPF
Q107 LPF
RV103 HUE ADJ
CT103 DECODER FREE RUN ADJ
X104 17.7MHz
IC111 SYNC SEP
H SYNC SEP
AFC
V SYNC SEP
1/32
32fH VCO
SYNC
X105 500kHz
Q105 INV
Q109 BUFFER
IC113
RV101 HUE ADJ
FL114 B·P·F
RV102 COLOR LEVEL
IC101 SUB PICTURE ENCORDER
IN2
IN1
C SYNC IN
V. OUT
MAIN C IN
C
SUB C IN
CLAMP
FRAME
ERROR AMP
SYNC MIX
Y/C MIX
VCA
MOD
BURST LEVEL
SW
SUB OUT
FRAME (WG)
PIN P SW
C LEVEL FILTER
WG
APC FILTER
ACC FILTER
1/4
APC DET
ACC DET
VCA
BGA
BGP
FREE RUN
ID
VCXO
CP2 GEN
CP1 CP2
SYNC SW
FREE RUN CONT
KILLER DET
ID KILLER
1/2
4fsc VCXO
SYNC DET
V-SYNC SEP
Y IN
R-Y
BFP R
B-Y
BFP B
HD IN
VCXO OUT
VCXO OUT
KILLER REF
ACK LEVEL
KILLER C
KILLER OUT
SYNC DET FILTER
SYNC DET OUT
SYN
VD
V SEP C
TIMING R
HD
CT101 ENCORDER FREE RUN ADJ
X102 17.7MHz
Q102 B-Y LPF
Q103 R-Y LPF
Q101 Y BUFFER
DL101 DL
FL112 LPF
IC103 D/A CONV
B-Y
R-Y
Y
CLK V
CLK R
CLK Y
BLK
D06
D01
0.4Vp-p
IC103 ⑲ E·E (Pin P·ON)
0.5Vp-p
IC103 ㉑ E·E (Pin P·ON)
0.7Vp-p
IC103 ⑰ E·E (PinP·ON)
IC107 RAM
D01
D06
A7
A0
IC112
Y
R-Y
B-Y
1·9·10
PIN P ON
IC102 DIGITAL PICTURE CONTROL
24·25·27 — 32
A7 — A0
DAY
DAR
DAB
BLK
SYM
V DM
H DM
H DS
L/R
LEF/RIG
T/B
TOP/BOT
S/M
SBL/MUL
V DS
SYS
5Vp-p
IC102 ㊶ E·E (PinP·ON)
IC104
SYM
SYS
VDM
VDS
SEL


ACC FILTER
FREE RUN CONT
ACC DET
VCA
BGA
BGP
1/32
32fH VCO
VCO IN
VCO OUT
X101 500Hz
I.D
VCA
VCXO
FREE RUN
AFC
AFC FILTER
CP2 GEN
CP1 CP2
SYNC SW
H.D MMV
SYNC DET
BGP GEN
BGD WIDTH
BGP
V-SYNC SEP
C-SYNC SEP
KILLER OUT
SYNC DET FILTER
SYNC DET OUT
SYN
VD
V SEP C
TIMING R
H.D
D/A CONV
D06
0.4Vp-p
E-E
D01
0.5Vp-p
E-E
IC107 RAM
D01
D06
A7
A0
D11
D16
IC108 A/D CONV
D1
D6
A/D CONV
MULTIPLEX
Y CLAMP
R-Y CLAMP
B-Y CLAMP
Y
R-Y
B-Y
ADC
MPX Y
MPX R
MPX B
SCL
DIGITAL PICTURE CONTROL
24·25·27 — 32
A7 — A0
ADC
MPX Y
MPX R
MPX B
SCL
WG
SW MM
SCLK
VCOE
CLK
RESET
5Vp-p
IC102 43 E-E (PinP:ON)
5Vp-p
5MHz
IC105 ① E-E (PinP:ON)
5.8Vp-p
30.2MHz
IC105 ⑬ E-E (PinP:ON)
IC105
IC106
X103 30.2MHz
CT102 WRITE CLOCK ADJ
D101 POW OFF RESET
Vcc

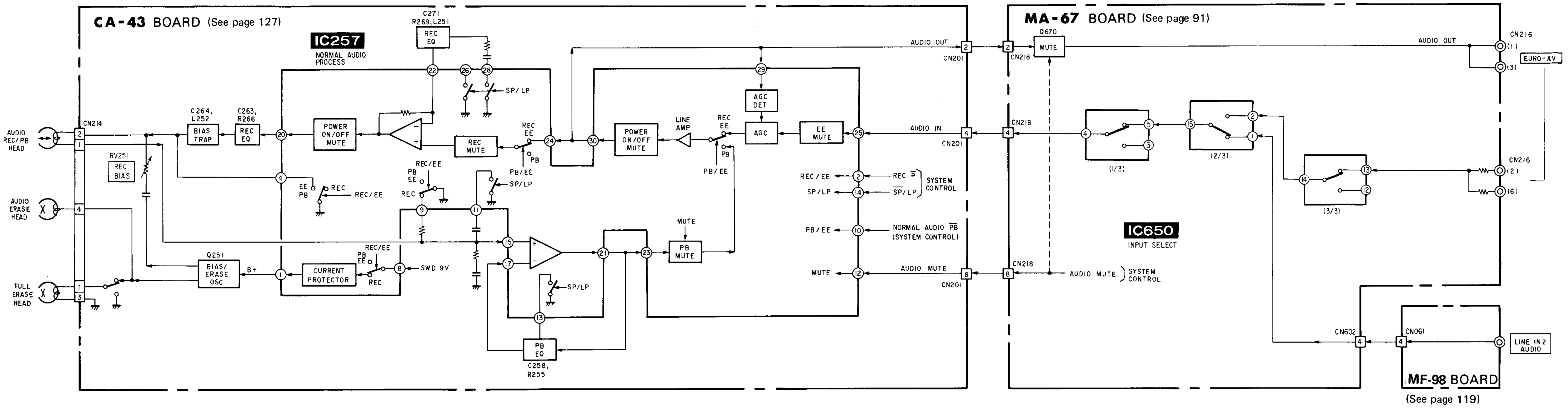
3-14. TIMER, MODE CONTROL BLOCK DIAGRAM


MF-99 BOARD
(See page 119)
CN080
S081 PLAY
SHUTTLE SWITCH
MF-98 BOARD
(See page 119)
CN060
S061 POWER
S062 EJECT
S063 VTR MODE
S065 VPS
SLV-474VP
MF-100 BOARD (See page 120)
CN004
CN005
S001 PAUSE/STILL
S002 STOP
AD 0
AD 1
AD 2
AD 3
AD 4
IC001
TIMER/TUNER MODE CONTROL
FL001 DISPLAY
S0 ~ S16
T0 ~ T9
5.6Vp-p
REC/PB
S CLK
SO
SI
H DET
COSMO RST
SIRCS IN
CN001
S CLK
SI BUS
SO BUS
H DET
SYSTEM CONTROL
COSMO RST
SYSTEM CONTROL
SIRCS IN
CN005
CN060
MF-98 BOARD
(See page 119)
IC061
OUT
REMOTE CONTROL RECIEVER
MA-67 BOARD
(See page 91)
CN209
Q858,859
SIRCS DETECT
Q855
SIRCS OUT
IN
CNJ951
CONTROL S
CNJ952
OUT
CN002
CGCS
COSMO CS
VPS CS
VPS RESET
XMT-PAUSE
CG CS
COSMO CS
SYSTEM CONTROL
VPS CS
VPS RESET
SYSTEM CONTROL
XMT-PAUSE
SW BLOCK BOARD
(See page 122)
CN003
GND
KEY AD5
KEY AD6
KEY AD7
AD 5
AD 6
AD 7
S005 TV/VTR
S004
S003
S002 AUTO/MANUAL
S001 REC
CHANNEL
TRACKING
S009
S008
S007 QUICK TIMER
S006 HI-SPEED REW
S014 REC MODE
S013 EDIT
S012 INPUT SELECT
S011 TIMER ON/OFF
S010 AUDIO DUB
X001 4.19MHz
CV001 CLOCK SET
X002 32.76kHz
POWER ON
CN001
POWER ON
POWER SUPPLY
PLL DATA
PLL LATCH
PLL CLK
TA MUTE
AFT UP
AFT DOWN
TUNER
IC840
EEP ROM
CN209
CS
CLK
DI
D2
CN001
MEM CS
MEM CLK
MEM DATA
MA-67 BOARD
(See page 93)
POWER RESET
IC003
RESET PULSE GEN
UN SW5.8V
POWER FAIL
POWER FAIL
IC002
UN SW5.8V
BUZZER
UNSW 5V
Q835
BUZZER AMP
CN001
CN209
BZ501
6Vp-p
REC/PB
MA-67 BOARD
(See page 93)

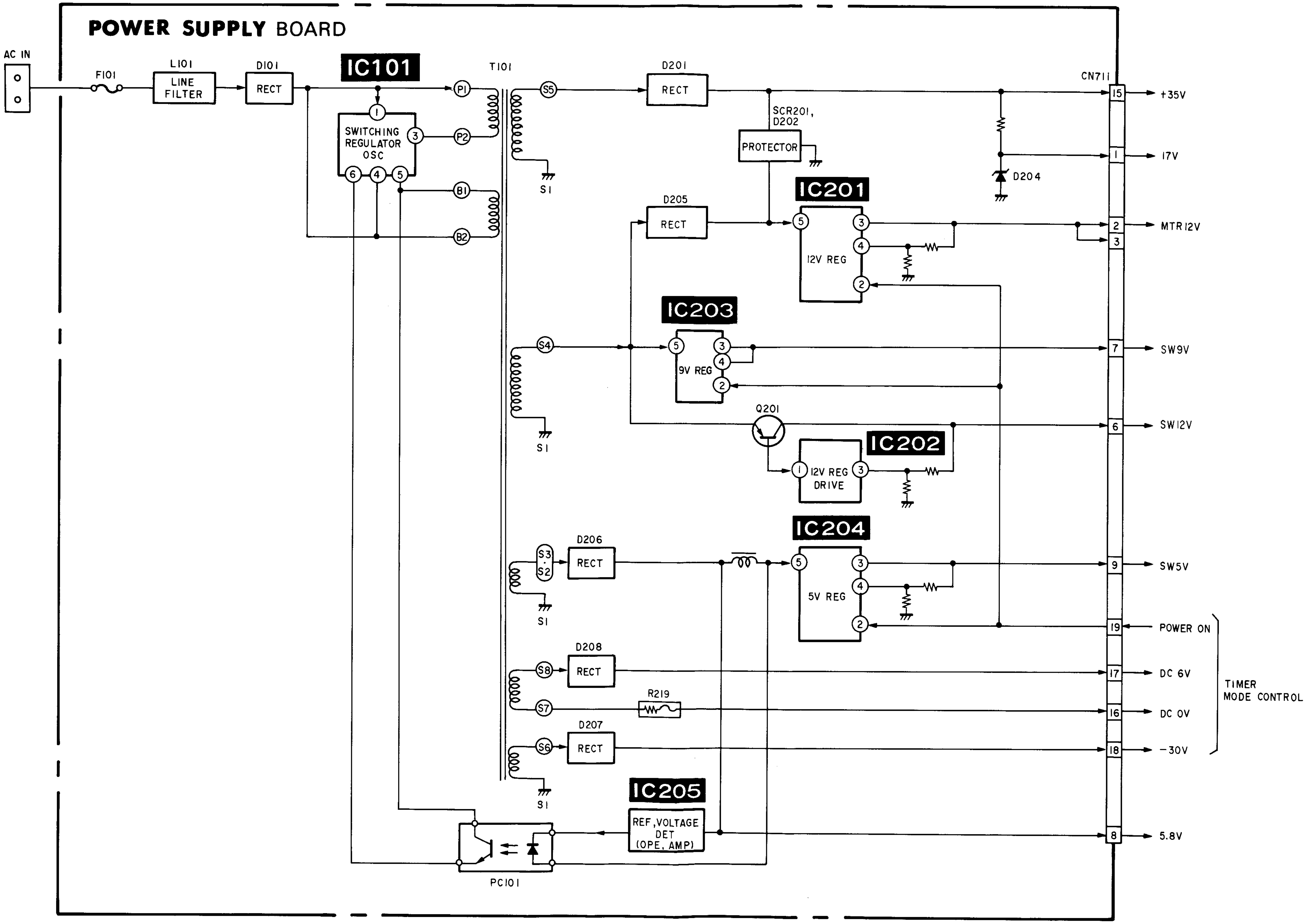
3-15. TUNER BLOCK DIAGRAM


MA-67 BOARD
(See page 101)
UHF/VHF
IN
OUT
SPLITER
TV
MIX
VTR
RF MODULATOR
VIDEO IN (VIDEO)
AUDIO IN (AUDIO)
SW5V (POWER SUPPLY)
UN SW 5V
TU701
UHF/VHF TUNER
UHF/VHF
AGC 6
IF 3
BM (SW12V) 7
BPL (+5V) 11
BTL (+30V) 10
DATA 14
CLK 13
LATCH 15
SW12V
SW5V
CN210
+37V (POWER SUPPLY) 15
Q751
30V REG
CN209
PLL DATA 14
PLL CLK 12
PLL LATCH 13
TIMER
IF701
SLV-474/474UB
RF AGC
VIF AGC
IF PRE AMP
SAW FILTER
VIF AMP
VIDEO DET
4.5MHz TRAP
BNC
AFT DET
AFT DEF UP/DOWN
APC DET
VCO
AUDIO IF PRE AMP
SIF DET
4.5MHz BPF
LIMITER
SOUND DET
SW9V
VOL CONT 7
11
DET OUT 12
UP 4
DOWN 5
ATF 6
AF OUT 8
MPX 10
SLV-474/474UB
AF IN 9
SLV-474/474UB
Q710, 711
VIDEO AMP
Q712
BUFFER
TO VIDEO
CN209
10
11
AFT UP
AFT DOWN
8 SLV-474/474UB
10 SLV-474VP AUDIO OUT
TO AUDIO

3-16. AUDIO BLOCK DIAGRAM

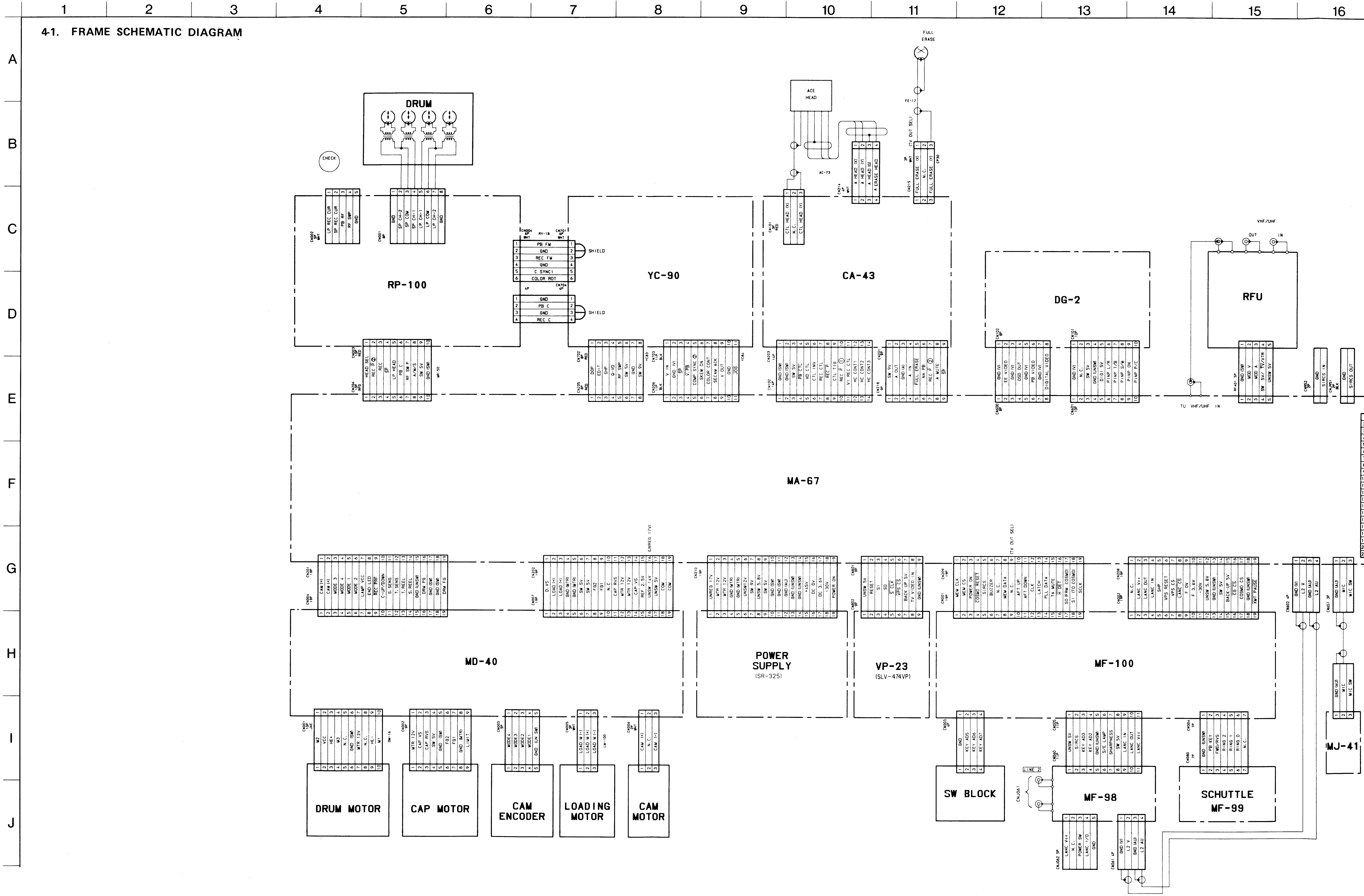

CA-43 BOARD (See page 127)
IC257
NORMAL AUDIO PROCESS
C271
R269, L251
REC EQ
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
CN214
RV251
REC BIAS
C264, L252
BIAS TRAP
C263, R266
REC EQ
POWER ON/OFF MUTE
REC MUTE
SP/LP
REC
EE
PB
PB/EE
REC/EE
EE
PB
REC
REC/EE
Q251
BIAS/ERASE OSC
B+
CURRENT PROTECTOR
SWD 9V
PB EQ
C258, R255
LINE AMP
AGC DET
AGC
EE MUTE
MUTE
PB MUTE
AUDIO OUT
AUDIO IN
CN201
REC/EE
SP/LP
REC P
SP/LP
SYSTEM CONTROL
PB/EE
NORMAL AUDIO PB
(SYSTEM CONTROL)
MUTE
AUDIO MUTE
MA-67 BOARD (See page 91)
Q670
MUTE
CN218
AUDIO OUT
CN216
(1)
(3)
EURO-AV
(2)
(6)
(1/3)
(2/3)
(3/3)
IC650
INPUT SELECT
AUDIO MUTE
SYSTEM CONTROL
CN602
CN061
LINE IN 2 AUDIO
MF-98 BOARD
(See page 119)

3-17. POWER SUPPLY BLOCK DIAGRAM


POWER SUPPLY BOARD
AC IN
F101
L101
LINE FILTER
D101
RECT
IC101
SWITCHING REGULATOR OSC
T101
P1
P2
B1
B2
S5
S1
D201
RECT
SCR201, D202
PROTECTOR
D204
D205
RECT
IC201
12V REG
IC203
9V REG
S4
Q201
IC202
12V REG DRIVE
IC204
5V REG
S3
S2
D206
RECT
D208
RECT
S8
S7
R219
D207
RECT
S6
IC205
REF,VOLTAGE DET (OPE. AMP)
PC101
CN711
+35V
17V
MTR12V
SW9V
SW12V
SW5V
POWER ON
DC 6V
DC 0V
−30V
5.8V
TIMER MODE CONTROL

SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



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A
B
C
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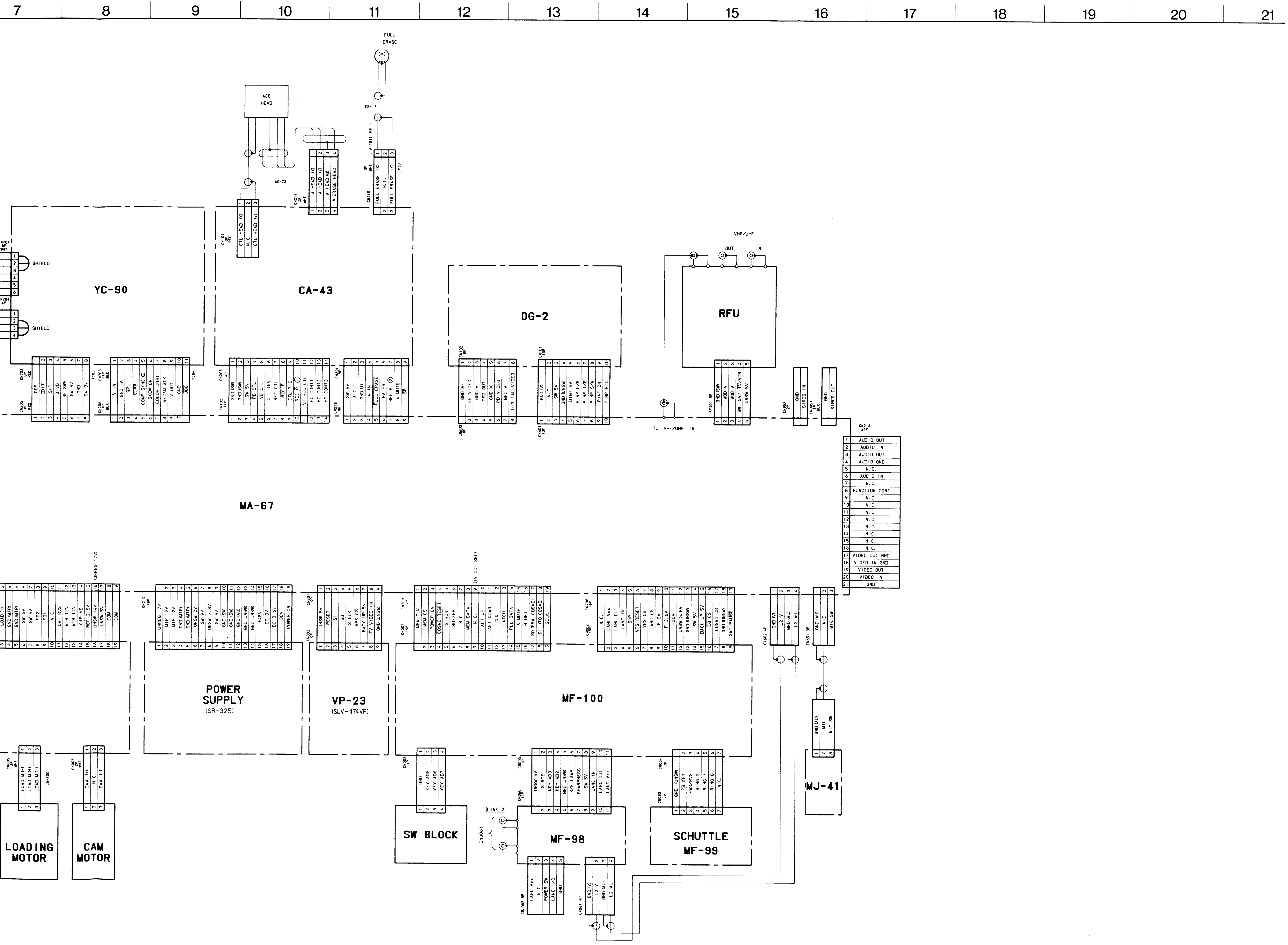
E
F
G
H
I
J
DRUM
CHECK
RP-100
RY-18
PB FM
GND
REC FM
GND
C SYNC1
COLOR ROT
GND
PB C
GND
REC C
SHIELD
YC-90
ACE HEAD
AC-73
CA-43
FULL ERASE
FE-17
DG-2
VHF/UHF
OUT
IN
RFU
TU VHF/UHF IN
MA-67
MD-40
POWER SUPPLY
(SR-325)
VP-23
(SLV-474VP)
MF-100
DRUM MOTOR
CAP MOTOR
CAM ENCODER
LOADING MOTOR
CAM MOTOR
SW BLOCK
LINE 2
MF-98
SCHUTTLE MF-99
MJ-41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20
21
FULL ERASE
FE-17
ACE HEAD
AC-73
YC-90
CA-43
DG-2
RFU
VHF/UHF
OUT
IN
TU VHF/UHF IN
SHIELD
SHIELD
MA-67
CN716 21P
1 AUDIO OUT
2 AUDIO IN
3 AUDIO OUT
4 AUDIO GND
5 N.C.
6 AUDIO IN
7 N.C.
8 FUNCTION CONT
9 N.C.
10 N.C.
11 N.C.
12 N.C.
13 N.C.
14 N.C.
15 N.C.
16 N.C.
17 VIDEO OUT GND
18 VIDEO IN GND
19 VIDEO OUT
20 VIDEO IN
21 GND
POWER SUPPLY
(SR-325)
VP-23
(SLV-474VP)
MF-100
MJ-41
LOADING MOTOR
CAM MOTOR
LM-100
SW BLOCK
MF-98
LINE 2
SCHUTTLE
MF-99

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ or ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

For schematic diagram:

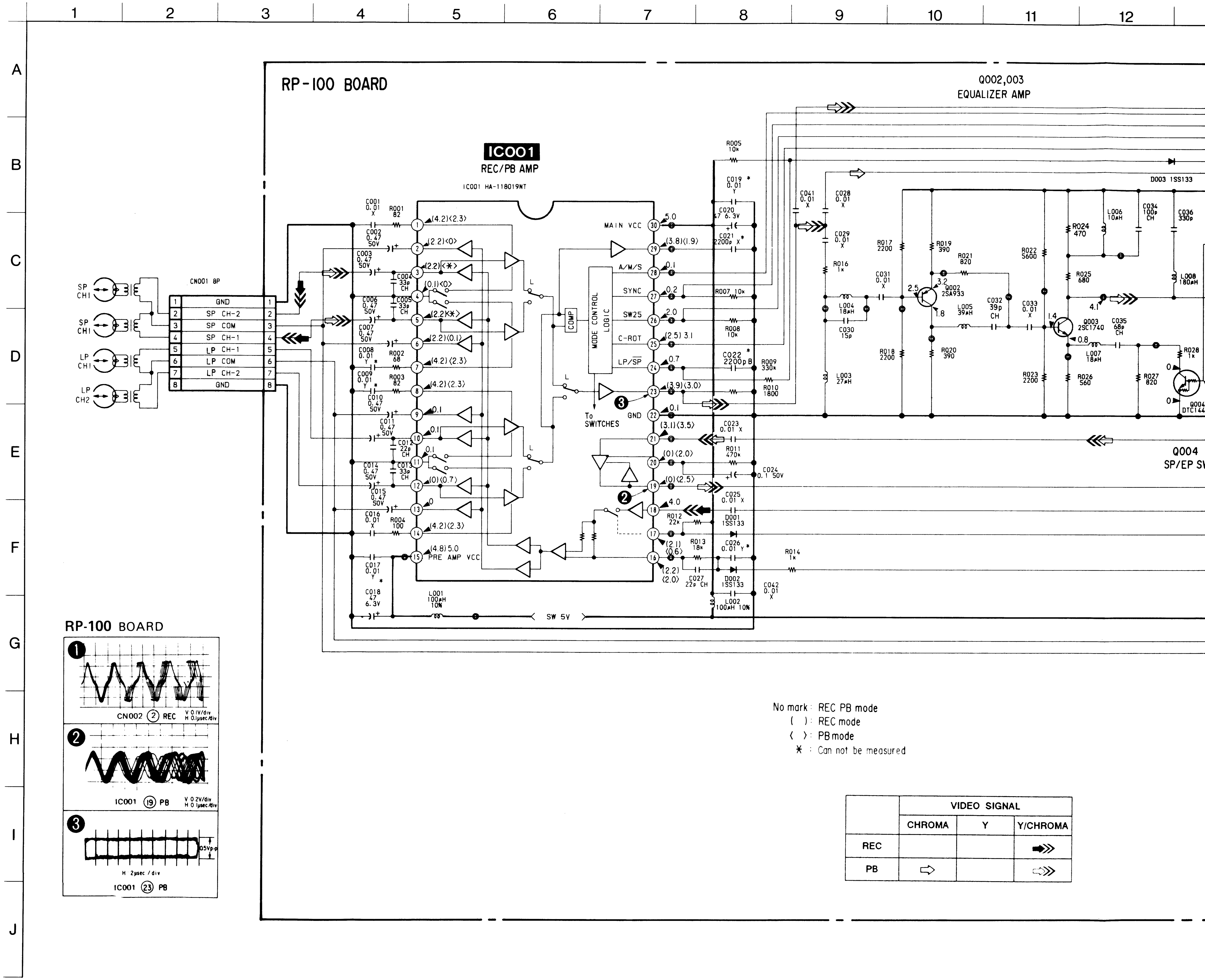
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair.
- ━━ : B+ line.
- ━ ━ ━ : B– line.
- Voltages are dc between measurement points and ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : IN/OUT direction of B line (+, –).
- Circled numbers refer to waveforms.

When indicating parts by reference number, please include the board name.

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

RP-100 (HEAD AMP) SCHEMATIC DIAGRAM

—Ref. No. RP-100 Board: 1,000 series—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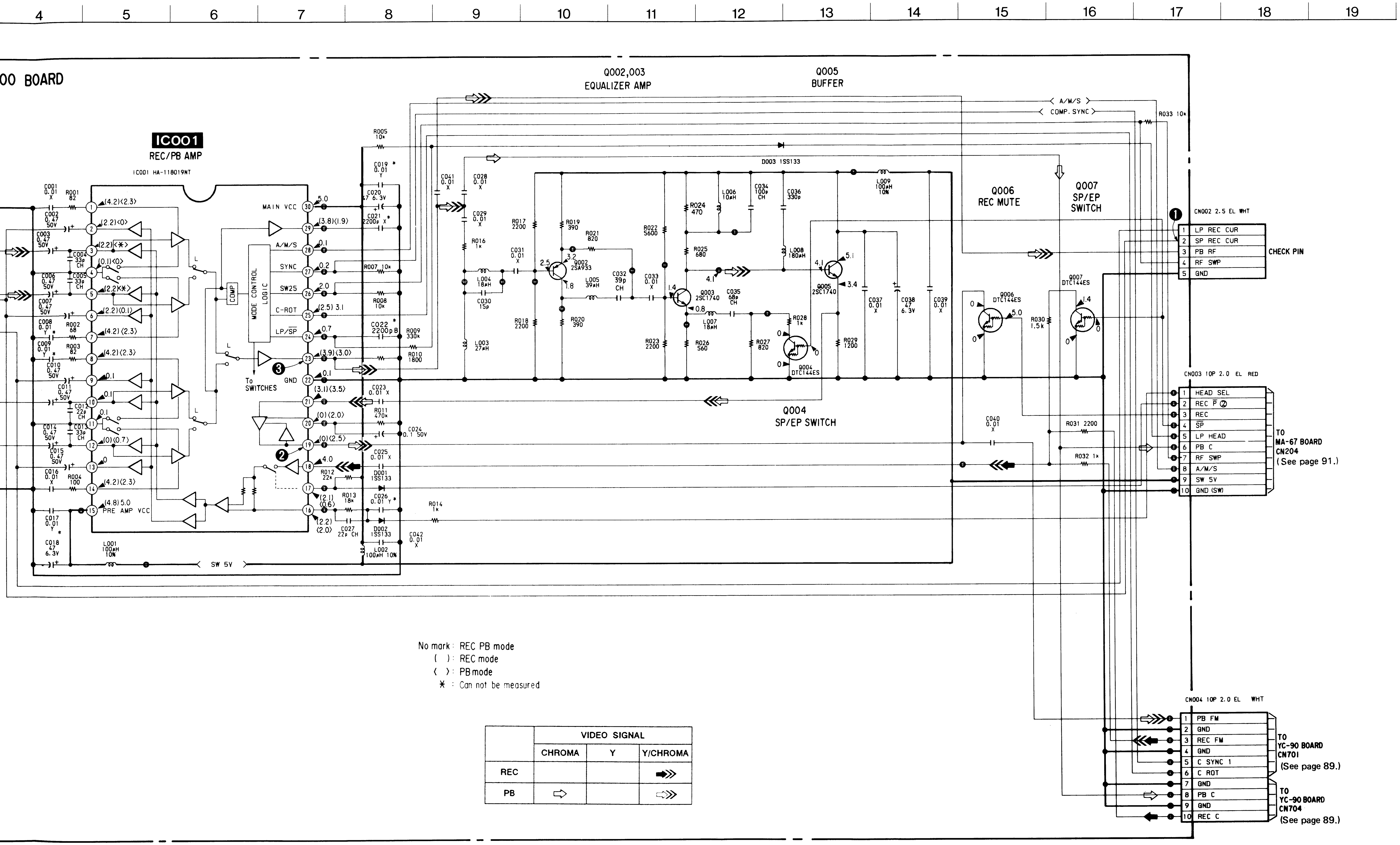
11
12
A
B
C
D
E
F
G
H
I
J
RP-100 BOARD
IC001
REC/PB AMP
IC001 HA-118019NT
Q002,003
EQUALIZER AMP
Q004
SP/EP SW
CN001 8P
GND
SP CH-2
SP COM
SP CH-1
LP CH-1
LP COM
LP CH-2
GND
SP CH1
SP CH1
LP CH1
LP CH2
MAIN VCC
A/M/S
SYNC
SW25
C-ROT
LP/SP
GND
MODE CONTROL LOGIC
COMP
To SWITCHES
PRE AMP VCC
SW 5V
RP-100 BOARD
CN002 ② REC
V 0.1V/div
H 0.1μsec/div
IC001 ⑲ PB
V 0.2V/div
H 0.1μsec/div
0.5Vp-p
H 2μsec/div
IC001 ㉓ PB

No mark: REC PB mode
( ): REC mode
〈 〉: PB mode
＊: Can not be measured

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡》
PB	⇨		⇨》


4
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14
15
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18
19
00 BOARD
IC001
REC/PB AMP
IC001 HA-118019NT
MAIN VCC
A/M/S
SYNC
SW25
C-ROT
LP/SP
MODE CONTROL LOGIC
COMP
To SWITCHES
GND
PRE AMP VCC
SW 5V
Q002,003
EQUALIZER AMP
Q005
BUFFER
Q006
REC MUTE
Q007
SP/EP SWITCH
Q004
SP/EP SWITCH
D003 1SS133
A/M/S
COMP. SYNC
R033 10k
CN002 2.5 EL WHT
1 LP REC CUR
2 SP REC CUR
3 PB RF
4 RF SWP
5 GND
CHECK PIN
CN003 10P 2.0 EL RED
1 HEAD SEL
2 REC P ②
3 REC
4 SP
5 LP HEAD
6 PB C
7 RF SWP
8 A/M/S
9 SW 5V
10 GND (SW)
TO MA-67 BOARD CN204 (See page 91.)
CN004 10P 2.0 EL WHT
1 PB FM
2 GND
3 REC FM
4 GND
5 C SYNC 1
6 C ROT
7 GND
8 PB C
9 GND
10 REC C
TO YC-90 BOARD CN701 (See page 89.)
TO YC-90 BOARD CN704 (See page 89.)

No mark : REC PB mode
( ) : REC mode
〈 〉 : PB mode
✻ : Can not be measured

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡≫
PB	⇨		⇨≫

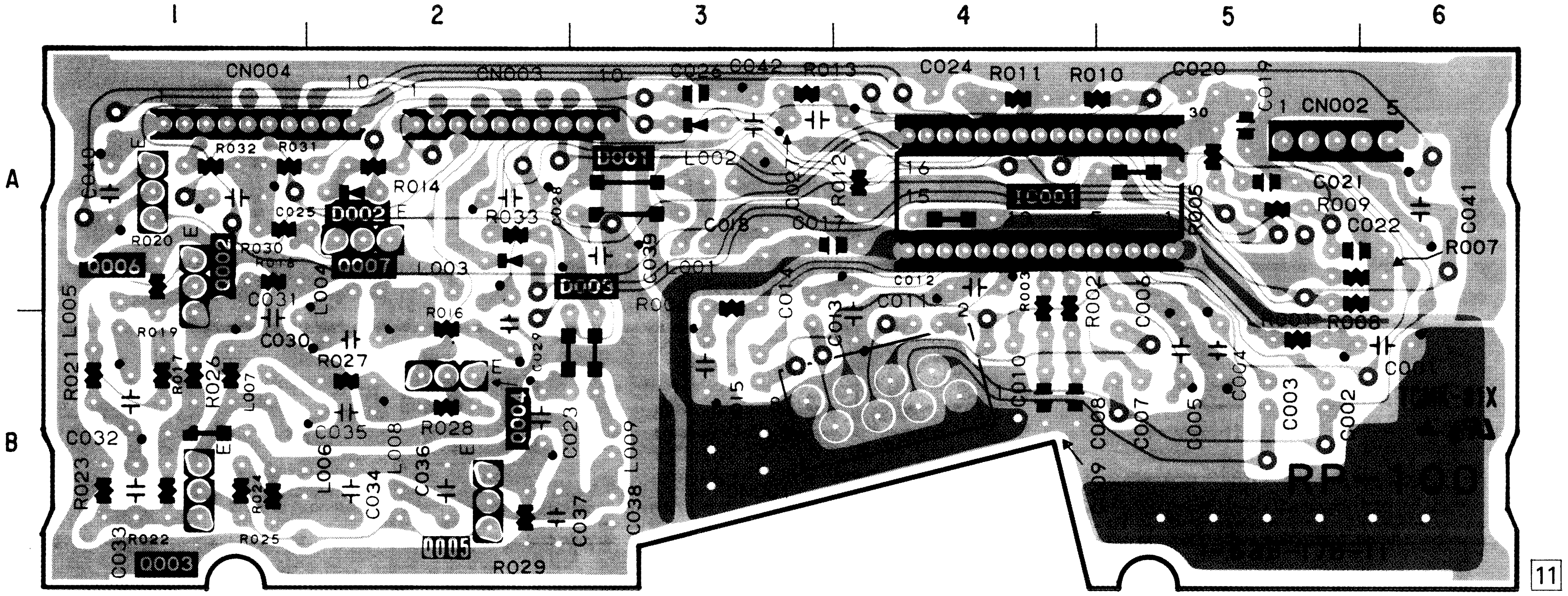
RP-100 (HEAD AMP) PRINTED WIRING BOARD

–Ref. No. RP-100 Board: 1,000 series–

RP-100 BOARD

D001	A-3
D002	A-2
D003	B-3
IC001	A-4
Q002	A-1
Q003	B-1
Q004	B-2
Q005	B-2
Q006	A-1
Q007	A-2

RP-100 BOARD


1
2
3
4
5
6
A
B
CN004
CN003
CN002
C026
C042
R013
C024
R011
R010
C020
C019
C040
R032
R031
R014
D001
L002
IC001
R012
C021
R009
C022
C041
R007
R020
C025
D002
R033
C028
C018
C017
R005
Q006
Q002
R030
R018
Q007
L003
C039
L001
D003
C012
C011
R003
R002
C006
R001
R008
L005
R021
R019
C031
C030
L004
R016
C029
C014
C013
C004
R017
R026
L007
R027
C035
R028
Q004
C023
C010
C008
C007
C005
C003
C002
C032
C034
L008
C036
L009
C015
R023
R024
L006
C037
C038
C033
R022
Q003
R025
Q005
R029
RP-100
11

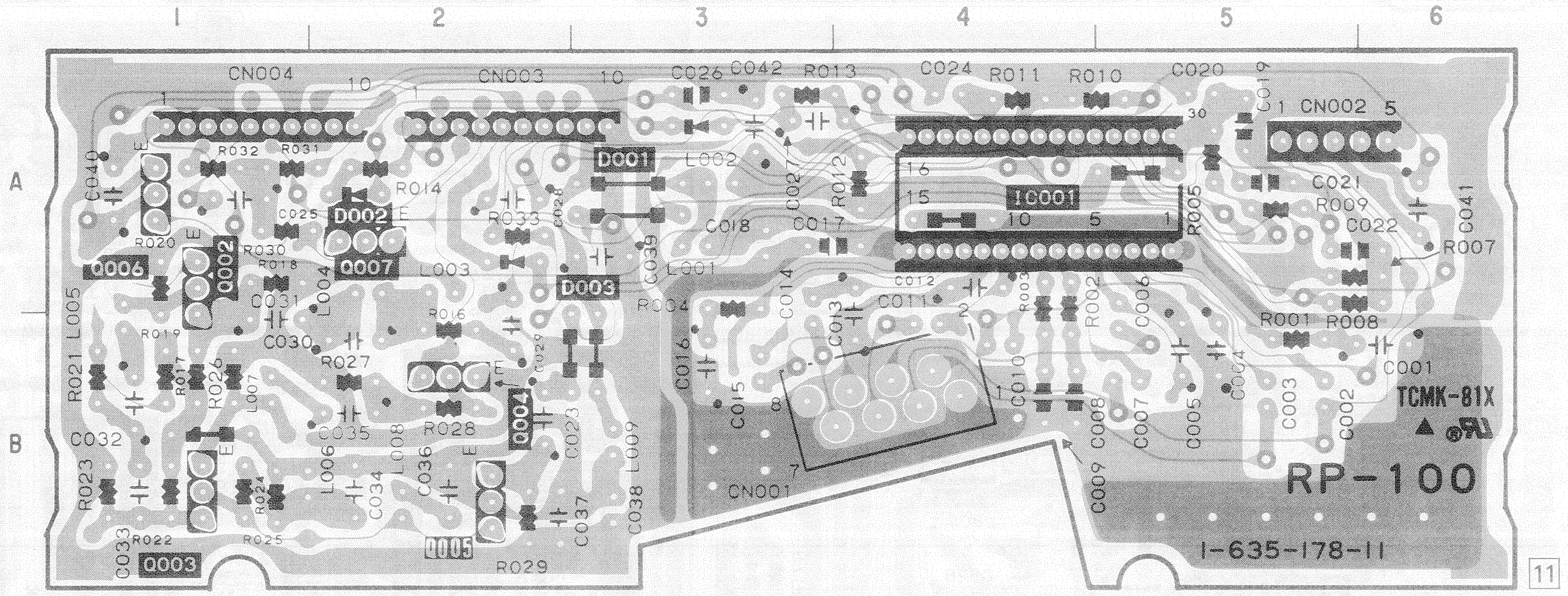
RP-100 (HEAD AMP) PRINTED WIRING BOARD

–Ref. No. RP-100 Board: 1,000 series–

RP-100 BOARD

RP-100 BOARD	
D001	A-3
D002	A-2
D003	B-3
IC001	A-4
Q002	A-1
Q003	B-1
Q004	B-2
Q005	B-2
Q006	A-1
Q007	A-2

RP-100 BOARD


1
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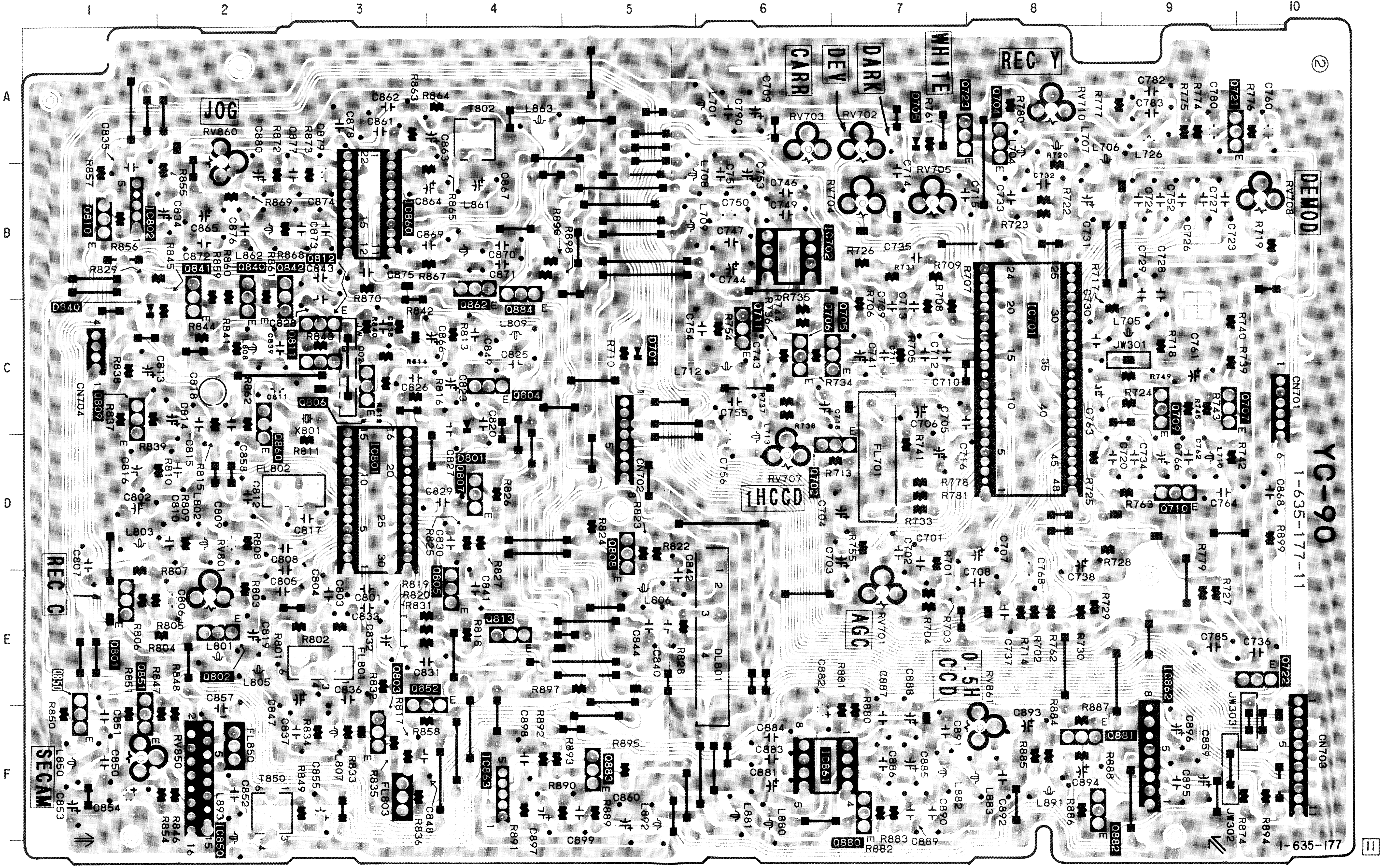
A
B
CN004
CN003
CN002
CN001
C026
C042
R013
C024
R011
R010
C020
C019
D001
D002
D003
IC001
Q002
Q003
Q004
Q005
Q006
Q007
L001
L002
L003
L004
L005
L006
L007
L008
L009
R014
R020
R030
R031
R032
R033
C040
C041
C021
R009
C022
R007
R001
R008
C001
C018
C017
C016
C015
C014
C013
C012
C011
C010
C009
C008
C007
C006
C005
C004
C003
C002
R002
R003
R004
R005
R012
R016
R017
R018
R019
R021
R022
R023
R024
R025
R026
R027
R028
R029
C023
C025
C027
C028
C029
C030
C031
C032
C033
C034
C035
C036
C037
C038
C039
TCMK-81X
RP-100
1-635-178-11
11

HEAD AMP **HEAD AMP**

YC-90 (VIDEO) PRINTED WIRING BOARD

–Ref. No. YC-90 Board: 2,000 series–

YC-90 BOARD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A
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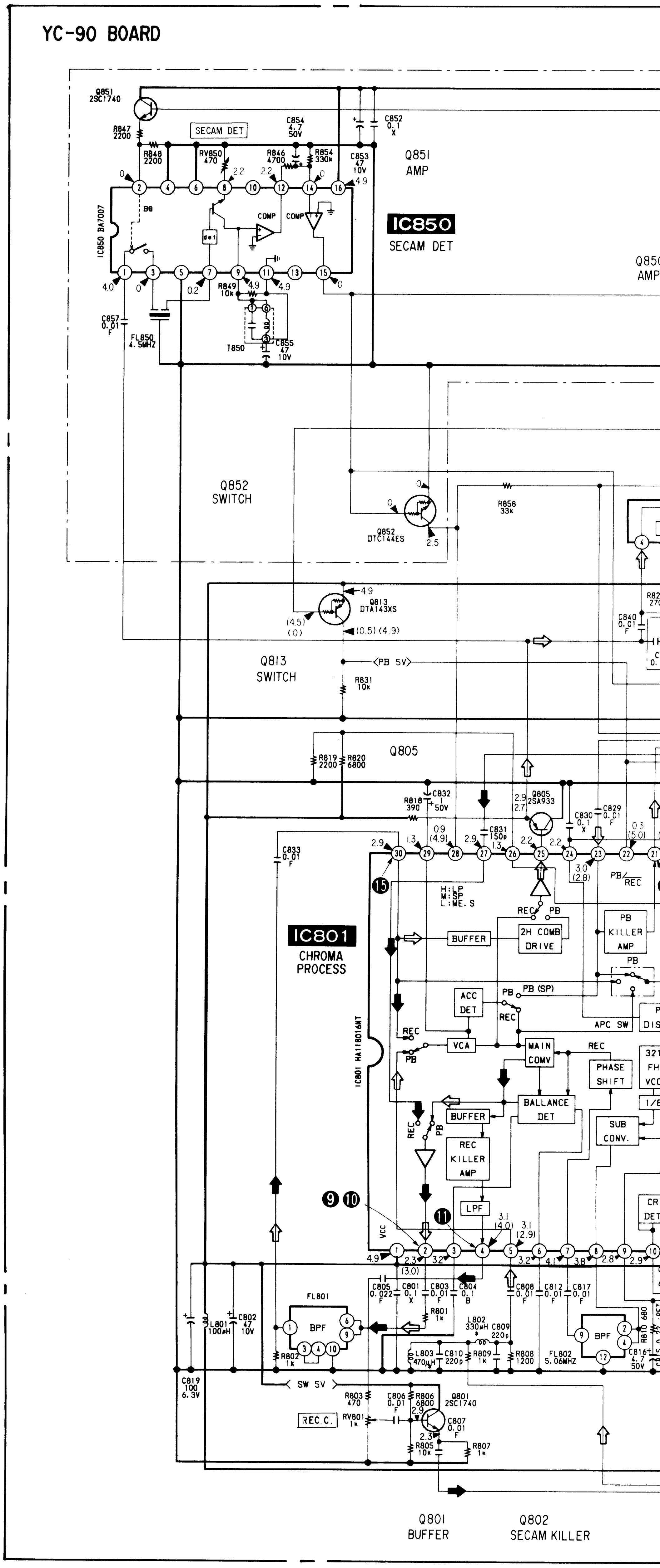
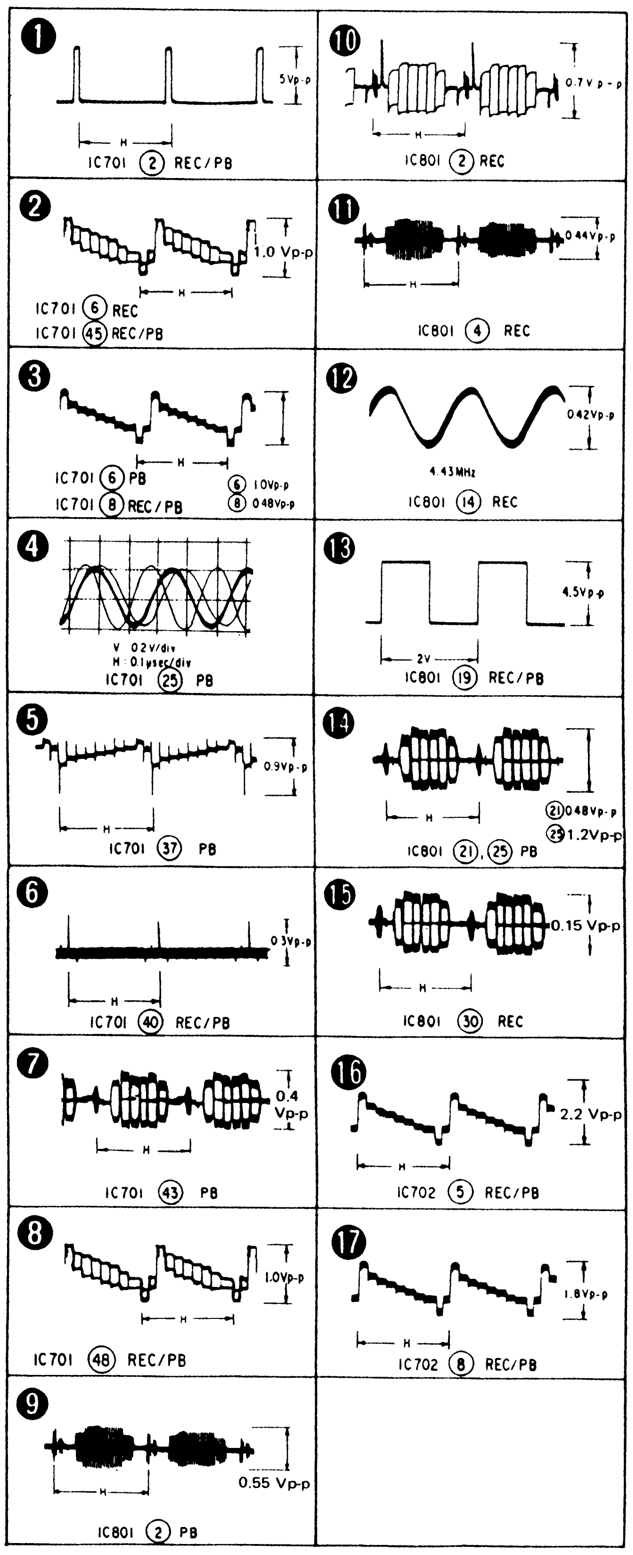
C
D
E
F
JOG
RV860
CARR
DEV
DARK
WHITE
REC Y
DEMOD
RV703
RV702
RV705
RV704
RV708
RV707
RV701
RV801
RV850
RV861
IC860
IC802
IC801
IC702
IC701
IC862
IC861
IC863
IC850
1HCCD
AGC
0.5H CCD
REC C
SECAM
FL701
FL801
FL802
FL803
FL850
DL801
T802
T850
X801
CN701
CN702
CN703
CN704
JW301
JW302
JW303
YC-90
1-635-177-11
1-635-177
②
11

YC-90 (VIDEO) SCHEMATIC DIAGRAM

–Ref. No. YC-90 Board: 2,000 series–

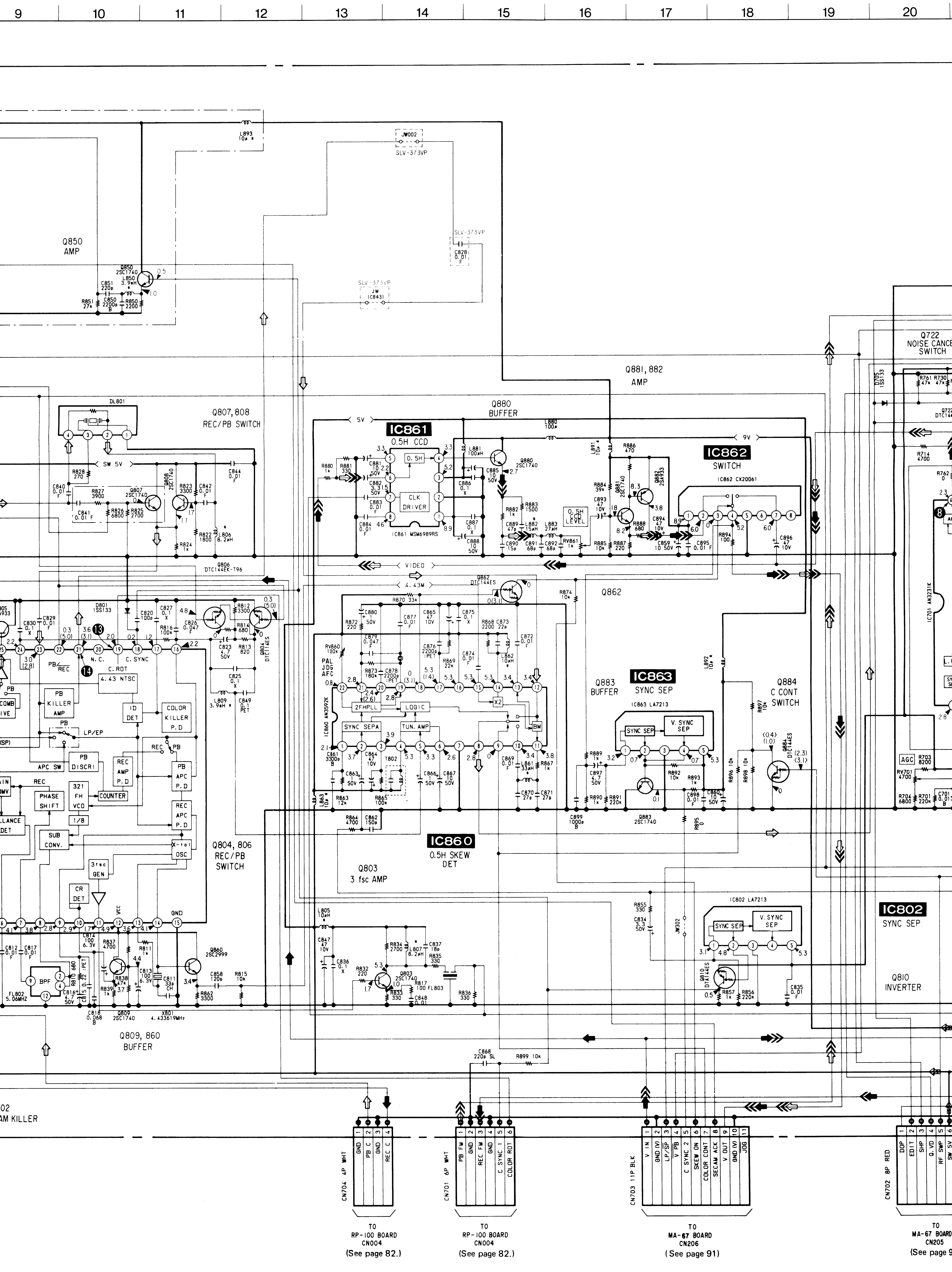

YC-90 BOARD
SECAM DET
Q851 2SC1740
Q851 AMP
IC850 BA7007
IC850 SECAM DET
Q850 AMP
FL850 4.5MHZ
T850
Q852 SWITCH
Q852 DTC144ES
Q813 DTA143XS
Q813 SWITCH
Q805
Q805 2SA933
IC801 CHROMA PROCESS
IC801 HA11801MT
BUFFER
2H COMB DRIVE
PB KILLER AMP
ACC DET
VCA
MAIN CONV
PHASE SHIFT
BALLANCE DET
SUB CONV.
REC KILLER AMP
LPF
APC SW
H:LP M:SP L:ME.S
FL801 BPF
FL802 5.06MHZ
L801 100μH
L802 330μH
L803 470μH
SW 5V
PB 5V
REC C.
RV801 1k
Q801 2SC1740
Q801 BUFFER
Q802 SECAM KILLER

YC-90 BOARD



YC -90 BOARD

D701	C-5	Q723	A-7
D705	B-7	Q801	E-1
D801	D-4	Q803	E-3
		Q804	C-4
IC701	C-8	Q805	E-4
IC702	B-6	Q806	C-3
IC801	D-3	Q807	D-4
IC802	B-1	Q808	D-5
IC850	F-2	Q809	C-1
IC860	B-3	Q810	D-1
IC861	F-6	Q813	E-4
IC862	F-9	Q850	E-1
IC863	F-4	Q851	E-1
		Q852	E-4
Q702	D-6	Q860	D-2
Q704	A-8	Q862	B-4
Q705	C-7	Q880	F-7
Q706	C-6	Q881	F-9
Q710	D-9	Q882	F-9
Q711	C-6	Q883	F-5
Q721	A-9	Q884	B-4
Q722	E-10		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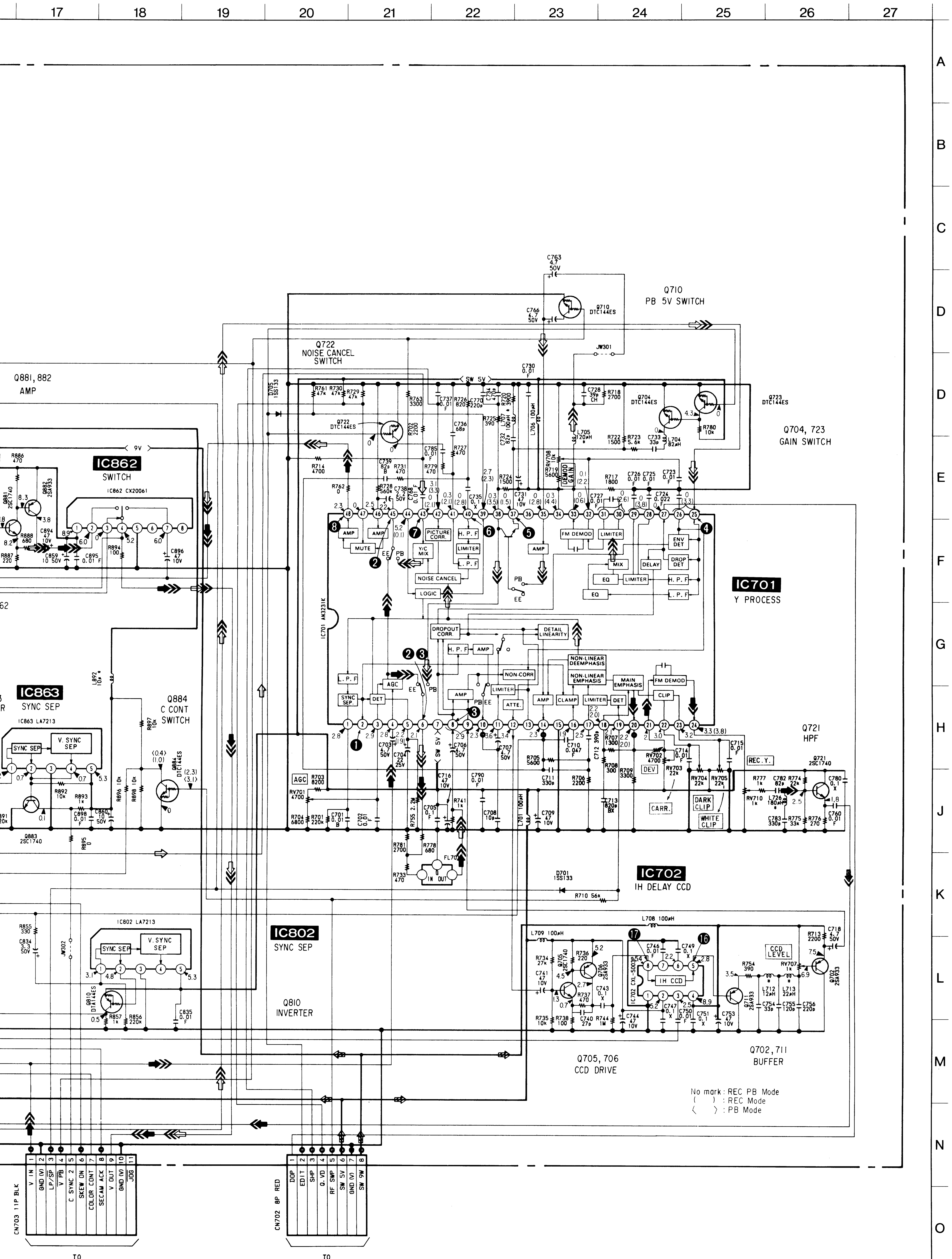
Q850 AMP
Q807, 808 REC/PB SWITCH
Q880 BUFFER
Q881, 882 AMP
IC861 0.5H CCD
IC861 MSM6989RS
CLK DRIVER
IC862 SWITCH
IC862 CX20061
0.5H CCD LEVEL
Q722 NOISE CANCE SWITCH
VIDEO
4.43M
Q862
IC860 0.5H SKEW DET
IC860 AN3592K
PAL JDG AFC
2FHPLL
LOGIC
SYNC SEPA
TUN. AMP
X2
BM
Q883 BUFFER
IC863 SYNC SEP
IC863 LA7213
SYNC SEP
V. SYNC SEP
Q884 C CONT SWITCH
Q803 3 fsc AMP
Q804, 806 REC/PB SWITCH
IC802 SYNC SEP
IC802 LA7213
Q810 INVERTER
Q809, 860 BUFFER
C. ROT
4.43 NTSC
ID DET
COLOR KILLER P.D
PB KILLER AMP
LP/EP
PB DISCRI
REC AMP P.D
PB APC P.D
REC APC P.D
321 FH VCO
COUNTER
1/8
PHASE SHIFT
SUB CONV.
X-tal OSC
3fsc GEN
CR DET
APC SW
DL801
SW 5V
5V
9V
SLV-373VP
JW002
JW (C843)
BPF
FL802 5.06MHz
X801 4.433619MHz
IC701 AN3231K
AGC
CN704 4P WHT
GND
PB C
GND
REC C
TO RP-100 BOARD CN004 (See page 82.)
CN701 6P WHT
PB FM
GND
REC FM
GND
C SYNC 1
COLOR ROT
TO RP-100 BOARD CN004 (See page 82.)
CN703 11P BLK
V IN
GND (V)
LP/SP
V PB
C SYNC 2
SKEW ON
COLOR CONT
SECAM ACK
V OUT
GND (V)
JOG
TO MA-67 BOARD CN206 (See page 91)
CN702 8P RED
DOP
EDIT
SHP
Q. VD
RF SWP
SW 5V
TO MA-67 BOARD CN205 (See page 9
02
AM KILLER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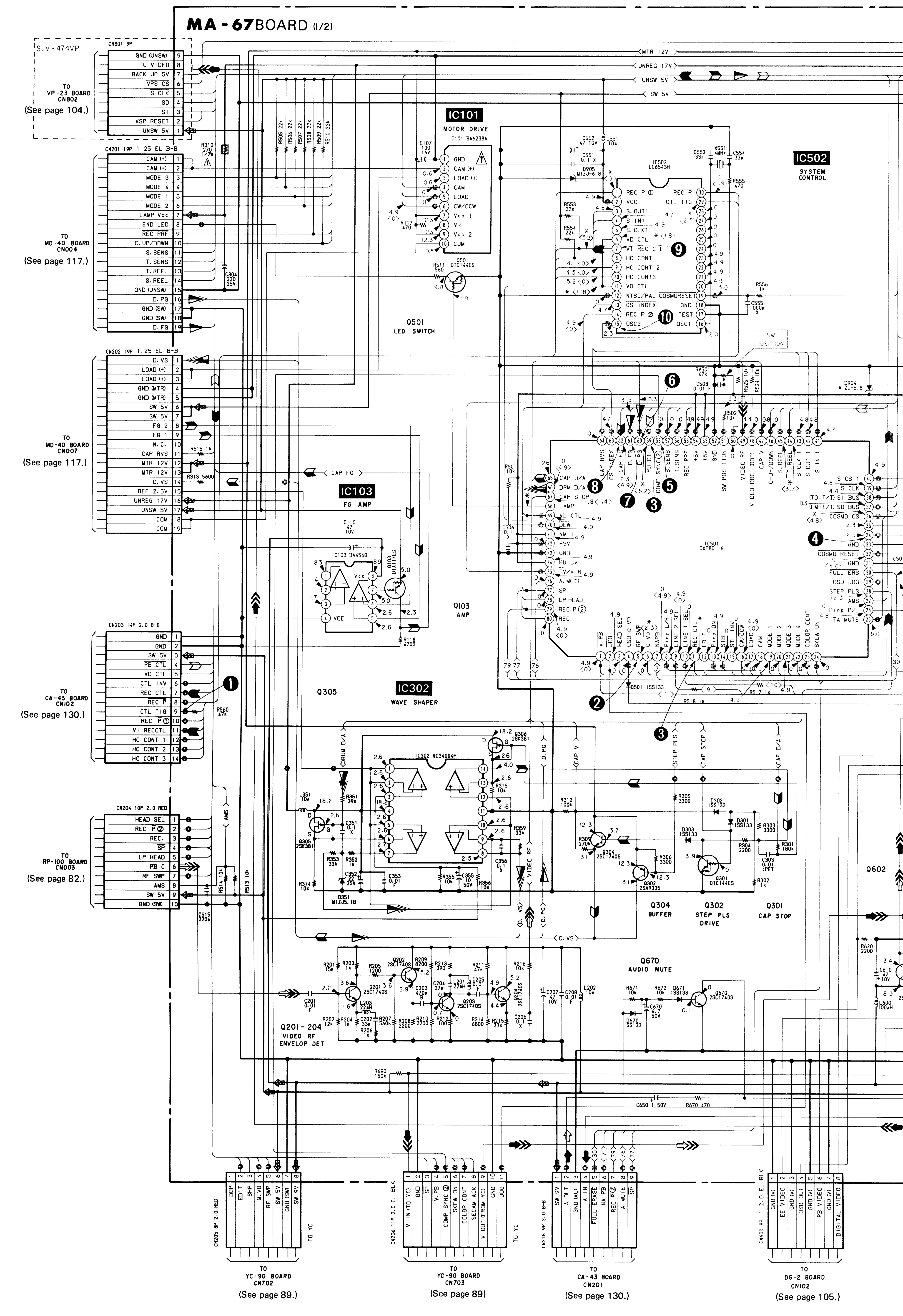
G
H
J
K
L
M
N
O
P
Q710
PB 5V SWITCH
Q722
NOISE CANCEL
SWITCH
Q881, 882
AMP
Q704, 723
GAIN SWITCH
IC862
SWITCH
IC862 CX20061
9V
SW 5V
IC701
Y PROCESS
IC701 AN3231K
AMP
MUTE
PICTURE CORR.
H.P.F
LIMITER
L.P.F
Y/C MIX
NOISE CANCEL
LOGIC
FM DEMOD
LIMITER
ENV DET
DROP DET
MIX
DELAY
EQ
DEMOD GAIN
DROPOUT CORR.
DETAIL LINEARITY
NON-LINEAR DEEMPHASIS
NON-LINEAR EMPHASIS
MAIN EMPHASIS
NON-CORR
ATTE.
CLAMP
DET
CLIP
SYNC SEP.
AGC
EE
PB
IC863
SYNC SEP
IC863 LA7213
SYNC SEP
V. SYNC SEP
Q884
C CONT
SWITCH
Q883
2SC1740
AGC
DEV
CARR.
DARK CLIP
WHITE CLIP
REC.Y.
Q721
HPF
IC702
IH DELAY CCD
IC702 CXL-5003P
IH CCD
CCD LEVEL
Q705, 706
CCD DRIVE
Q702, 711
BUFFER
IC802
SYNC SEP
IC802 LA7213
Q810
INVERTER
FL701
IN OUT
D701 1SS133
D705 1SS133
JW301
JW302
No mark: REC PB Mode
( ) : REC Mode
〈 〉 : PB Mode
CN703 11P BLK
V IN
GND (V)
LP/SP
V PB
C SYNC 2
SKEW ON
COLOR CONT
SECAM ACK
V OUT
GND (V)
JOG
TO
MA-67 BOARD
CN206
(See page 91)
CN702 8P RED
DOP
EDIT
SHP
Q. VD
RF SWP
SW 5V
GND (V)
SW 9W
TO
MA-67 BOARD
CN205
(See page 91.)

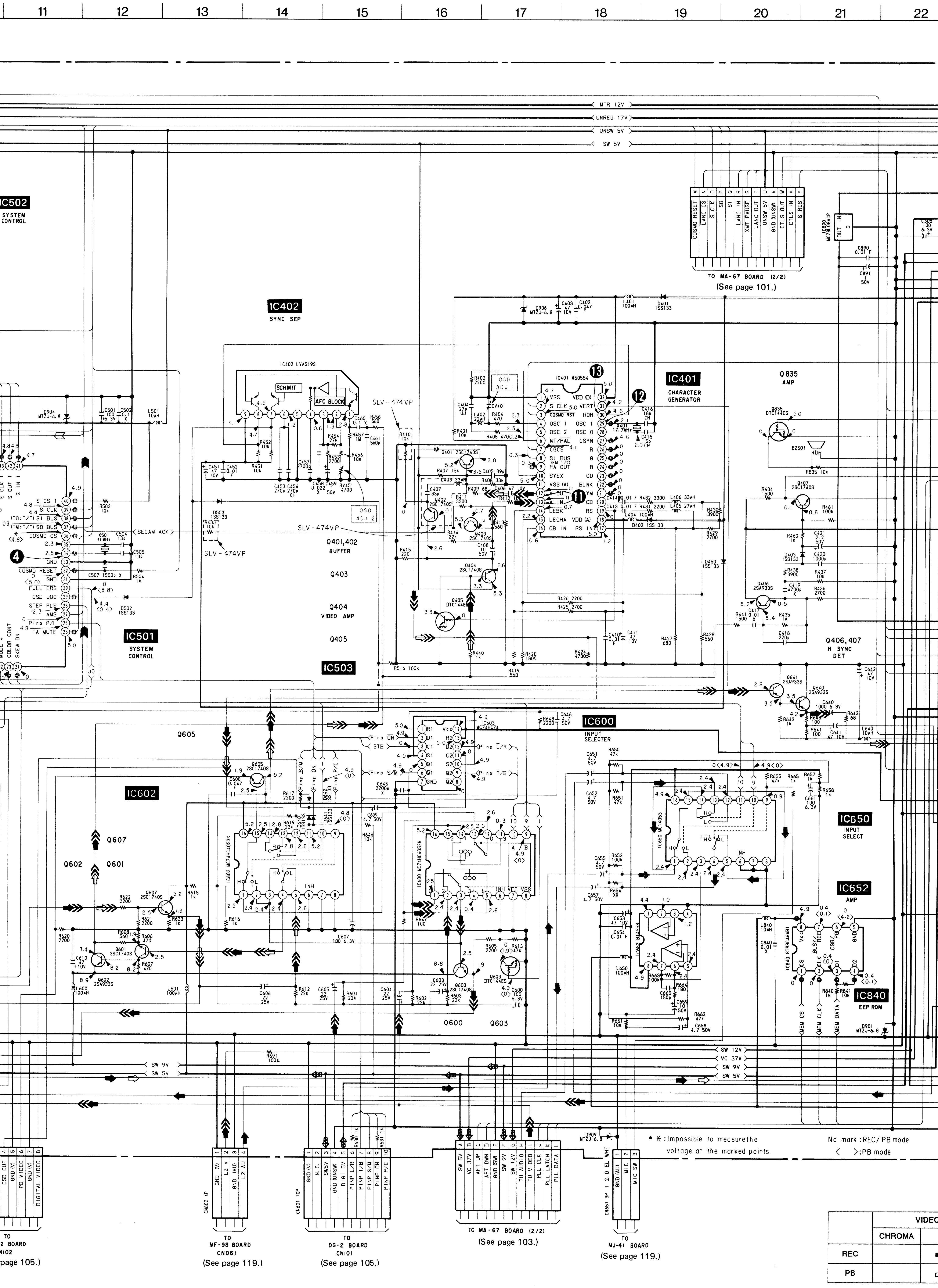
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»»
PB	⇨	⇨»	⇨»»

VIDEO VIDEO

MA-67 (1/2) (SERVO, SYSTEM CONTROL) SCHEMATIC DIAGRAM

– Ref. No. MA-67 Board: 3,000 series –


MA-67 BOARD (1/2)
SLV-474VP
CN801 9P
TO VP-23 BOARD CN802
(See page 104.)
CN201 19P 1.25 EL B-B
TO MD-40 BOARD CN004
(See page 117.)
CN202 19P 1.25 EL B-B
TO MD-40 BOARD CN007
(See page 117.)
CN203 14P 2.0 B-B
TO CA-43 BOARD CN102
(See page 130.)
CN204 10P 2.0 RED
TO RP-100 BOARD CN003
(See page 82.)
IC101
MOTOR DRIVE
IC101 BA6238A
Q501 DTC144ES
Q501
LED SWITCH
IC502
SYSTEM CONTROL
IC502 LC6543H
IC103
FG AMP
IC103 BA4560
Q103
AMP
IC501 CXP80116
IC302
WAVE SHAPER
IC302 MC34004P
Q305
Q306 2SK381
Q304
BUFFER
Q302
STEP PLS DRIVE
Q301
CAP STOP
Q201 - 204
VIDEO RF ENVELOP DET
Q670
AUDIO MUTE
Q602
MTR 12V
UNREG 17V
UNSW 5V
SW 5V
CAP FG
C.VS
SW POSITION
CN205 8P 2.0 RED
TO YC
TO YC-90 BOARD CN702
(See page 89.)
CN206 11P 2.0 EL BLK
TO YC-90 BOARD CN703
(See page 89)
CN218 9P 2.0 B-B
TO CA-43 BOARD CN201
(See page 130.)
CN600 8P 1.2.0 EL BLK
TO DG-2 BOARD CN102
(See page 105.)


11
12
13
14
15
16
17
18
19
20
21
22
MTR 12V
UNREG 17V
UNSW 5V
SW 5V
IC502 SYSTEM CONTROL
IC402 SYNC SEP
IC402 LVA519S
SCHMIT
AFC BLOCK
SLV-474VP
OSD ADJ 1
OSD ADJ 2
IC401 M50554
IC401 CHARACTER GENERATOR
Q835 AMP
BZ501
TO MA-67 BOARD (2/2)
(See page 101.)
IC890 MC78L08ACP
Q401,402 BUFFER
Q403
Q404 VIDEO AMP
Q405
IC501 SYSTEM CONTROL
IC503
IC503 MC74HC74
Q406,407 H SYNC DET
IC600 INPUT SELECTER
IC602
IC602 MC74HC4053N
IC600 MC74HC4052N
IC650 MC14053
IC650 INPUT SELECT
IC652 AMP
IC652 BA4558
IC840 ST93C46AB1
IC840 EEP ROM
Q605
Q607
Q602
Q601
Q600
Q603
SW 12V
VC 37V
SW 9V
SW 5V
TO ...2 BOARD ...N102
(See ...page 105.)
TO MF-98 BOARD CN061
(See page 119.)
TO DG-2 BOARD CN101
(See page 105.)
TO MA-67 BOARD (2/2)
(See page 103.)
TO MJ-41 BOARD
(See page 119.)

• ✱ : Impossible to measure the voltage at the marked points.

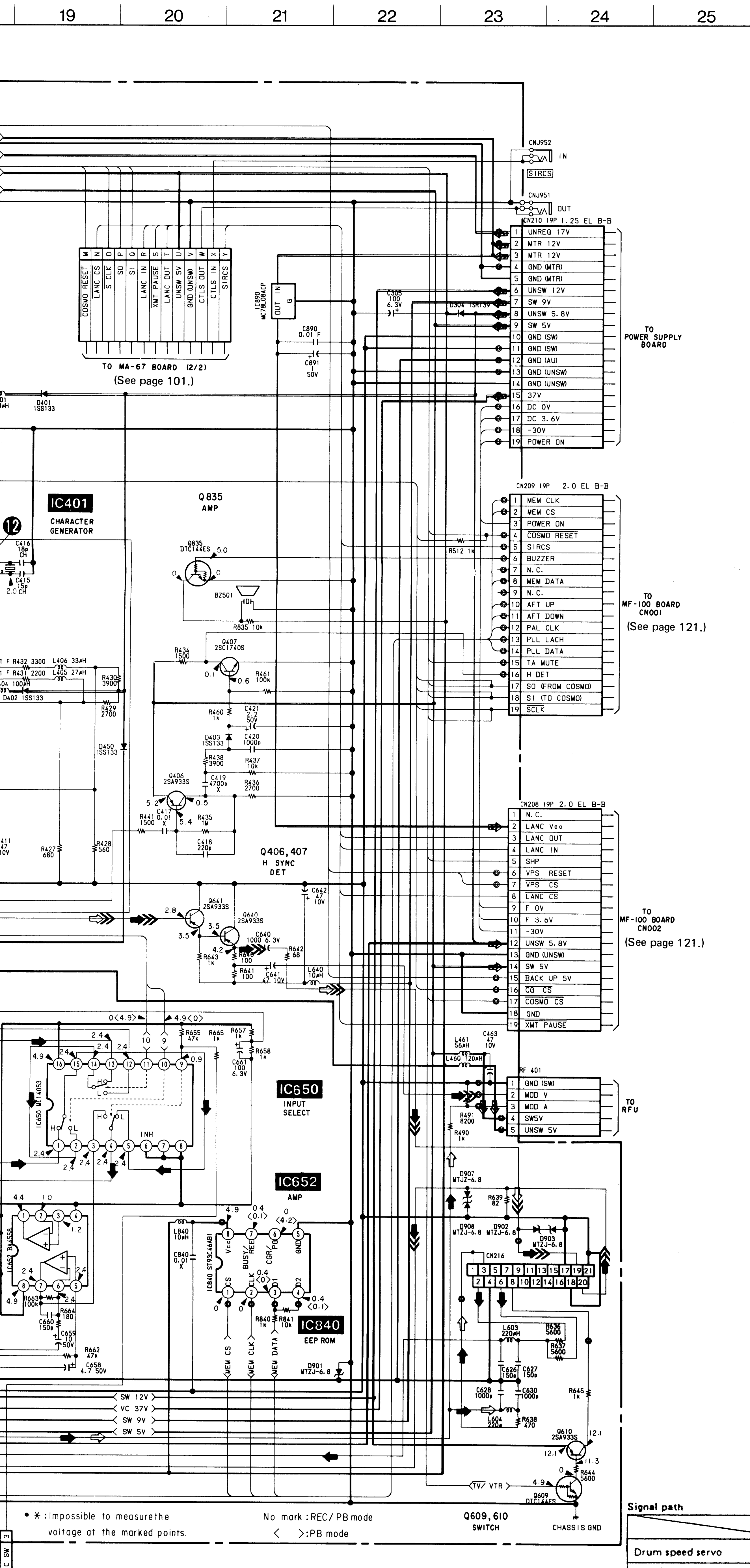
No mark : REC/PB mode

〈 〉: PB mode

	VIDEO
	CHROMA
REC	
PB	

TROL

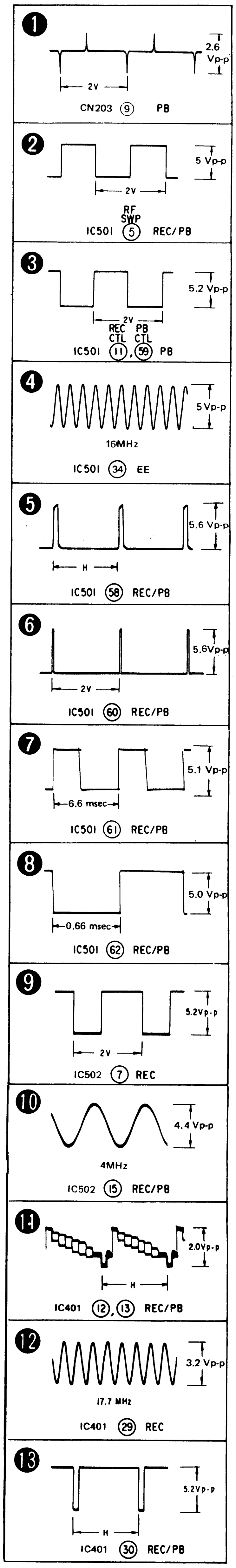
SERVO, SYSTEM CONTR


19
20
21
22
23
24
25
26
27
TO MA-67 BOARD (2/2)
(See page 101.)
CN210 19P 1.25 EL B-B
UNREG 17V
MTR 12V
MTR 12V
GND (MTR)
GND (MTR)
UNSW 12V
SW 9V
UNSW 5.8V
SW 5V
GND (SW)
GND (SW)
GND (AU)
GND (UNSW)
GND (UNSW)
37V
DC 0V
DC 3.6V
-30V
POWER ON
TO POWER SUPPLY BOARD
CN209 19P 2.0 EL B-B
MEM CLK
MEM CS
POWER ON
COSMO RESET
SIRCS
BUZZER
N.C.
MEM DATA
N.C.
AFT UP
AFT DOWN
PAL CLK
PLL LACH
PLL DATA
TA MUTE
H DET
SO (FROM COSMO)
SI (TO COSMO)
SCLK
TO MF-100 BOARD CN001
(See page 121.)
CN208 19P 2.0 EL B-B
N.C.
LANC Vcc
LANC OUT
LANC IN
SHP
VPS RESET
VPS CS
LANC CS
F 0V
F 3.6V
-30V
UNSW 5.8V
GND (UNSW)
SW 5V
BACK UP 5V
CG CS
COSMO CS
GND
XMT PAUSE
TO MF-100 BOARD CN002
(See page 121.)
RF 401
GND (SW)
MOD V
MOD A
SW5V
UNSW 5V
TO RFU
IC401
CHARACTER GENERATOR
Q835 AMP
Q406,407 H SYNC DET
IC650 INPUT SELECT
IC652 AMP
IC840 EEP ROM
Q609,610 SWITCH
CHASSIS GND
SW 12V
VC 37V
SW 9V
SW 5V
MEM CS
MEM CLK
MEM DATA
TV/ VTR
MIC SW
BOARD
ge 119.)

- ✱ :Impossible to measurethe voltage at the marked points.

No mark :REC/PB mode
< >:PB mode

MA-67 BOARD



Signal path

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo		▷	
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➡		▷

	VIDEO SIGNAL			AUDIO
	CHROMA	Y	Y/CHROMA	
REC		➡	➡➡	➡
PB		⇨	⇨⇨	⇨

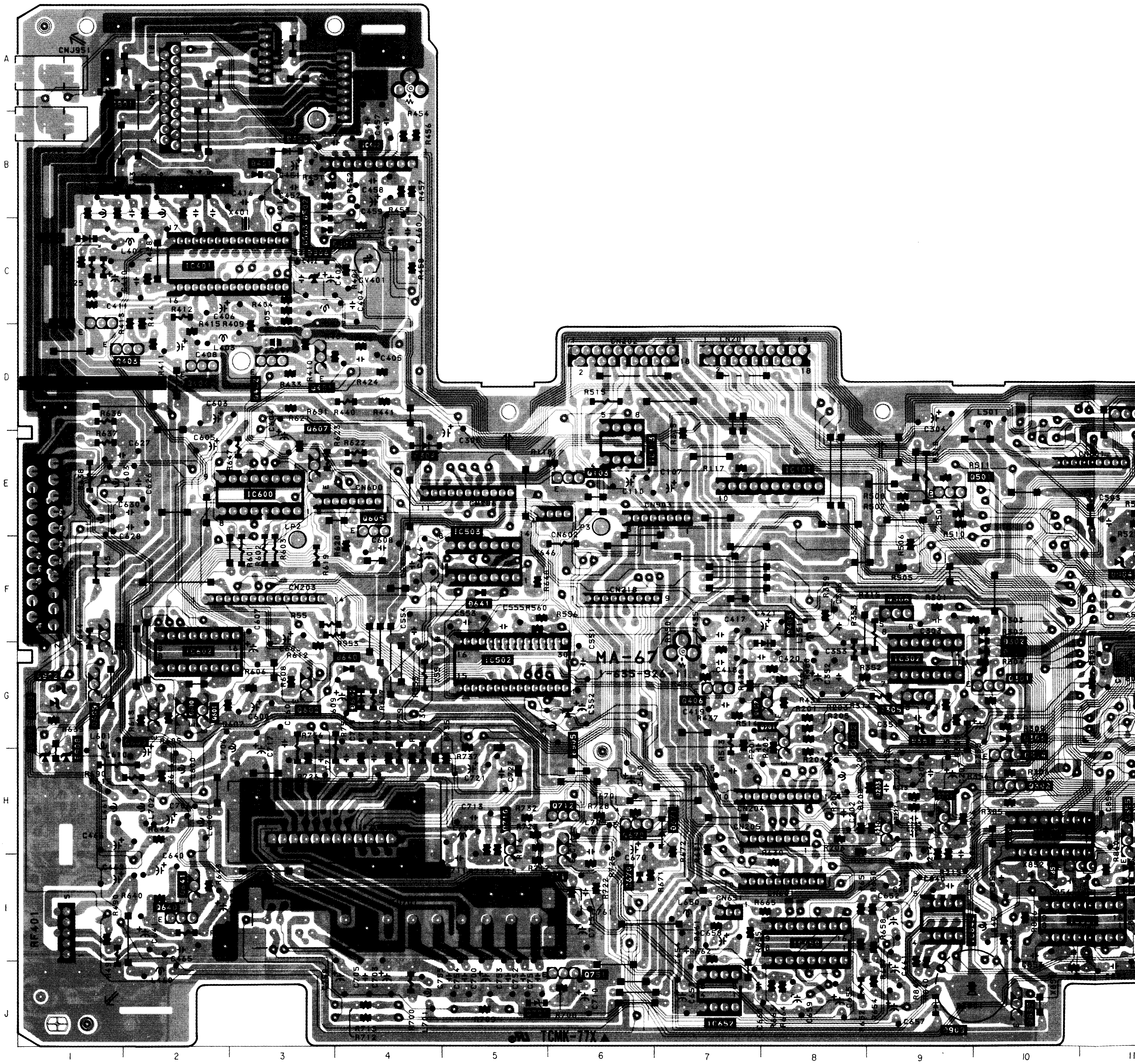
MA-67 (SERVO, SYSTEM CONTROL) PRINTED WIRING BOARD

– Ref. No. MA-67 Board: 3,000 series –

MA-67 BOARD

D301	I-12
D302	I-12
D303	I-11
D304	F-5
D351	J-11
D401	B-3
D402	C-1
D403	E-3
D404	C-3
D501	B-3
D502	B-3
D503	B-3
D504	E-11
D551	F-4
D601	H-9
D602	E-1
D603	J-8
D604	J-9
D670	F-6
D671	F-5
D701	J-6
D901	F-1
D902	G-1
D903	G-1
D951	G-2
D952	G-1
D953	G-1
IC101	F-8
IC103	E-6
IC302	I-11
IC401	C-2
IC402	H-11
IC501	E-10
IC502	E-4
IC601	J-7
IC702	J-12
IC801	E-12
IC802	G-12
Q103	E-7
Q201	I-10
Q202	I-10
Q203	J-9
Q204	J-10
Q301	I-11
Q302	I-12
Q304	H-11
Q401	D-3
Q402	E-2
Q403	D-1
Q404	D-2
Q405	D-1
Q406	E-2
Q407	F-2
Q451	H-12
Q501	E-9
Q515	H-13
Q601	H-7
Q602	H-8
Q603	H-7
Q604	I-9
Q608	H-9
Q609	I-1
Q610	H-2
Q670	F-5
Q710	G-3
Q711	G-4
Q712	G-5
Q751	J-6
Q951	G-1
Q952	H-2

MA-67 BOARD

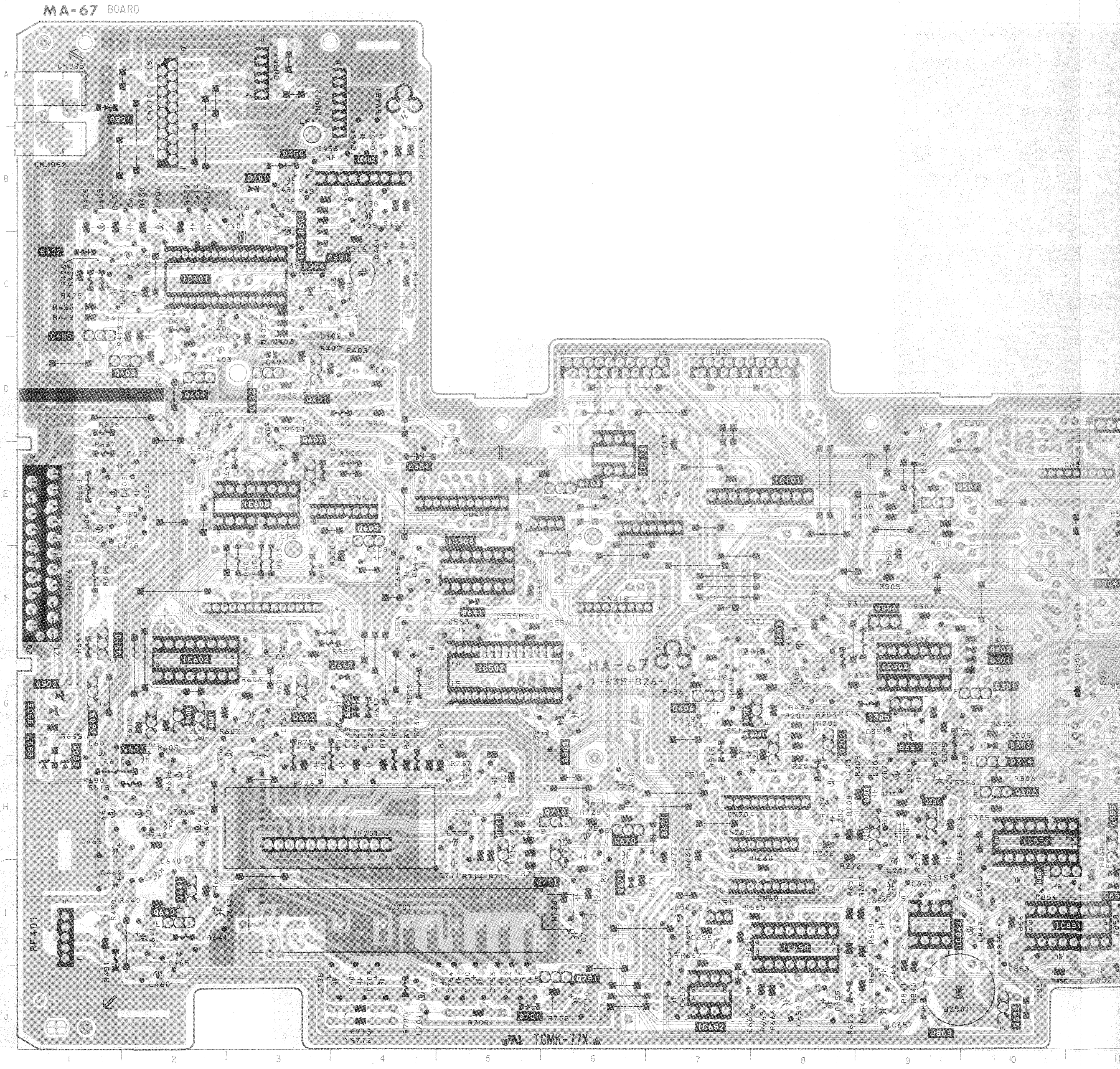

A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
CNJ951
IC401
IC600
IC502
IC503
MA-67
TGMK-77X
RF401
IC652

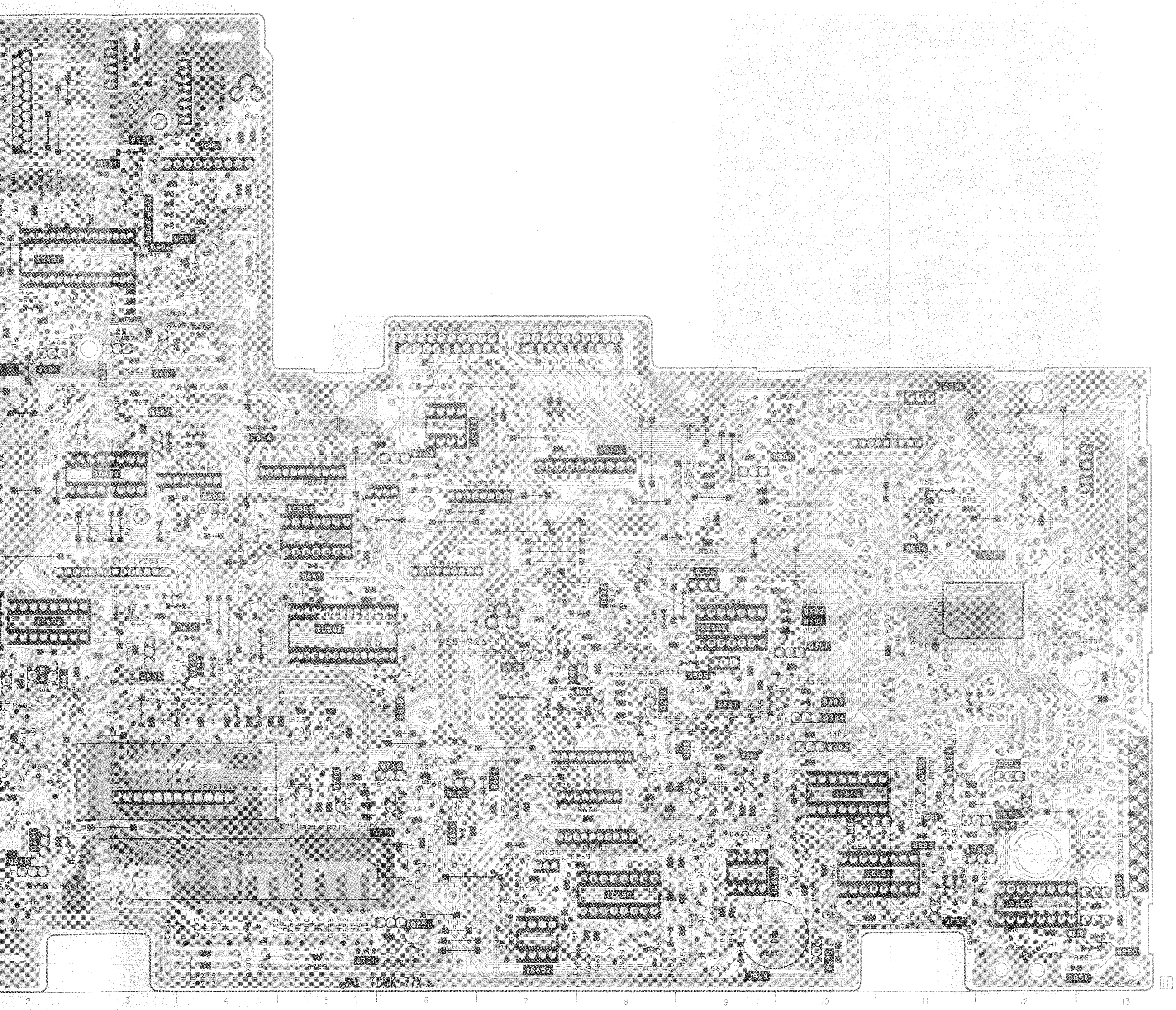
MA-67 (SERVO, SYSTEM CONTROL) PRINTED WIRING BOARD

—Ref. No. MA-67 Board: 3,000 series—

MA-67 BOARD

D301	I-12	IC702	J-12
D302	I-12	IC801	E-12
D303	I-11	IC802	G-12
D304	F-5		
D351	J-11	Q103	E-7
D401	B-3	Q201	I-10
D402	C-1	Q202	I-10
D403	E-3	Q203	J-9
D404	C-3	Q204	J-10
D501	B-3	Q301	I-11
D502	B-3	Q302	I-12
D503	B-3	Q304	H-11
D504	E-11	Q401	D-3
D551	F-4	Q402	E-2
D601	H-9	Q403	D-1
D602	E-1	Q404	D-2
D603	J-8	Q405	D-1
D604	J-9	Q406	E-2
D670	F-6	Q407	F-2
D671	F-5	Q451	H-12
D701	J-6	Q501	E-9
D901	F-1	Q515	H-13
D902	G-1	Q601	H-7
D903	G-1	Q602	H-8
D951	G-2	Q603	H-7
D952	G-1	Q604	I-9
D953	G-1	Q608	H-9
		Q609	I-1
IC101	F-8	Q610	H-2
IC103	E-6	Q670	F-5
IC302	I-11	Q710	G-3
IC401	C-2	Q711	G-4
IC402	H-11	Q712	G-5
IC501	E-10	Q751	J-6
IC502	E-4	Q951	G-1
IC601	J-7	Q952	H-2


MA-67 BOARD
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
CNJ951
CNJ952
CN901
CN902
CN210
RV451
IC401
IC402
IC600
IC602
IC502
IC503
IC101
IC302
IC852
IC851
IC650
IC652
IF701
TU701
RF401
CN216
CN202
CN201
CN203
CN204
CN205
CN601
BZ501
MA-67
1-635-926-11
TCMK-77X

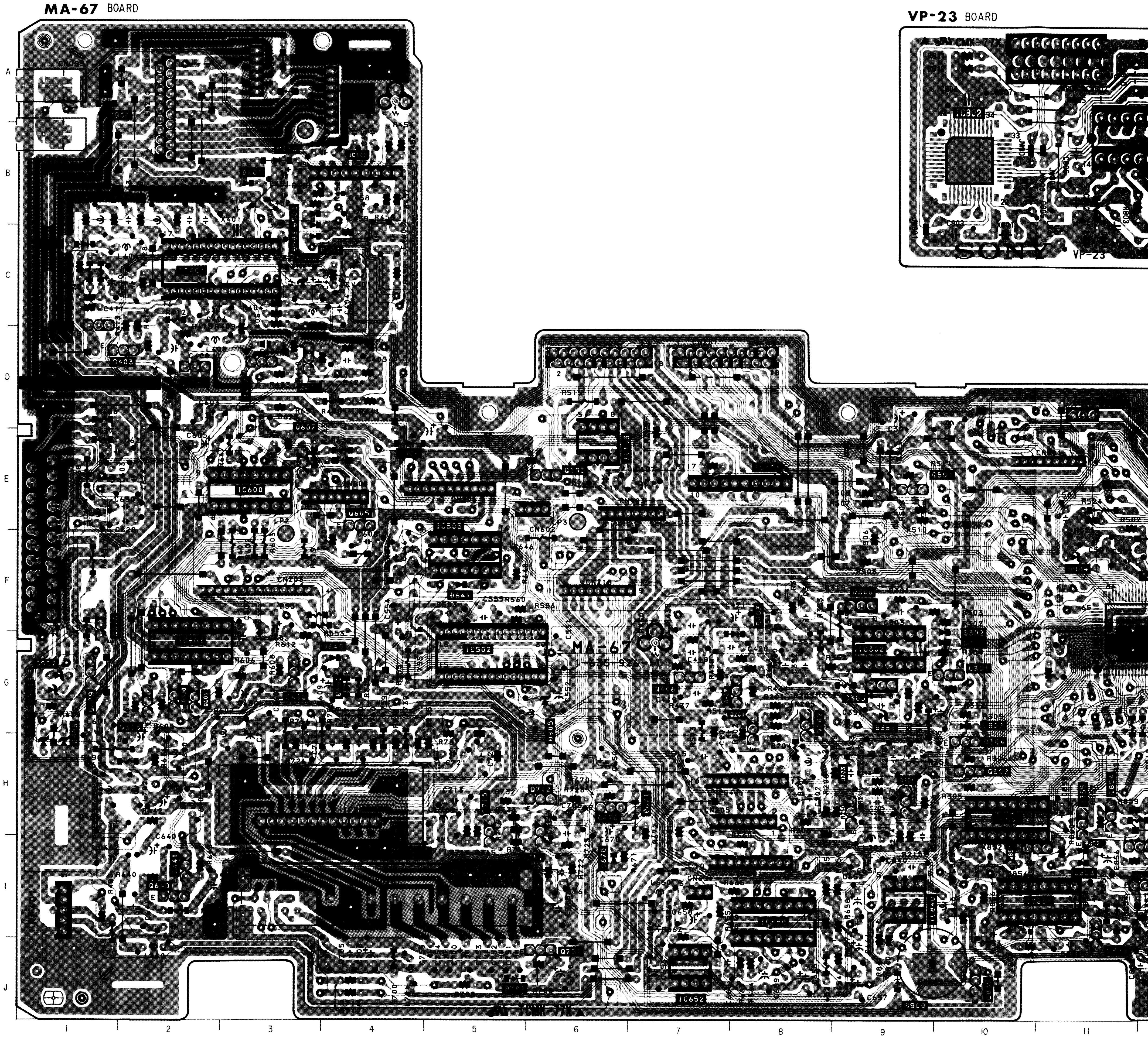

MA-67
1-635-926-11
TCMK-77X
1-635-926
CN210
CN901
CN902
RV451
LP1
IC402
IC401
CN202
CN201
IC890
CN801
CN904
IC101
IC103
CN903
IC600
CN600
CN208
IC503
CN602
CN218
CN203
IC602
IC502
RV501
IC302
IC501
X501
CN204
CN205
CN601
IC852
IC851
IC850
IC840
IC650
IC652
CN651
FZ701
TU701
BZ501
2
3
4
5
6
7
8
9
10
11
12
13

MA-67 (2/2) (SERVO, SYSTEM CONTROL), VP-23 (VPS CONTROL) PRINTED WIRING BOARDS

–Ref. No. MA-67 Board: 3,000 series, VP-23 Board: 6,000 series–

MA-67 BOARD

D301	I-12	IC702	J-12
D302	I-12	IC801	E-12
D303	I-11	IC802	G-12
D304	F-5		
D351	J-11	Q103	E-7
D401	B-3	Q201	I-10
D402	C-1	Q202	I-10
D403	E-3	Q203	J-9
D404	C-3	Q204	J-10
D501	B-3	Q301	I-11
D502	B-3	Q302	I-12
D503	B-3	Q304	H-11
D504	E-11	Q401	D-3
D551	F-4	Q402	E-2
D601	H-9	Q403	D-1
D602	E-1	Q404	D-2
D603	J-8	Q405	D-1
D604	J-9	Q406	E-2
D670	F-6	Q407	F-2
D671	F-5	Q451	H-12
D701	J-6	Q501	E-9
D901	F-1	Q515	H-13
D902	G-1	Q601	H-7
D903	G-1	Q602	H-8
D951	G-2	Q603	H-7
D952	G-1	Q604	I-9
D953	G-1	Q608	H-9
		Q609	I-1
IC101	F-8	Q610	H-2
IC103	E-6	Q670	F-5
IC302	I-11	Q710	G-3
IC401	C-2	Q711	G-4
IC402	H-11	Q712	G-5
IC501	E-10	Q751	J-6
IC502	E-4	Q951	G-1
IC601	J-7	Q952	H-2

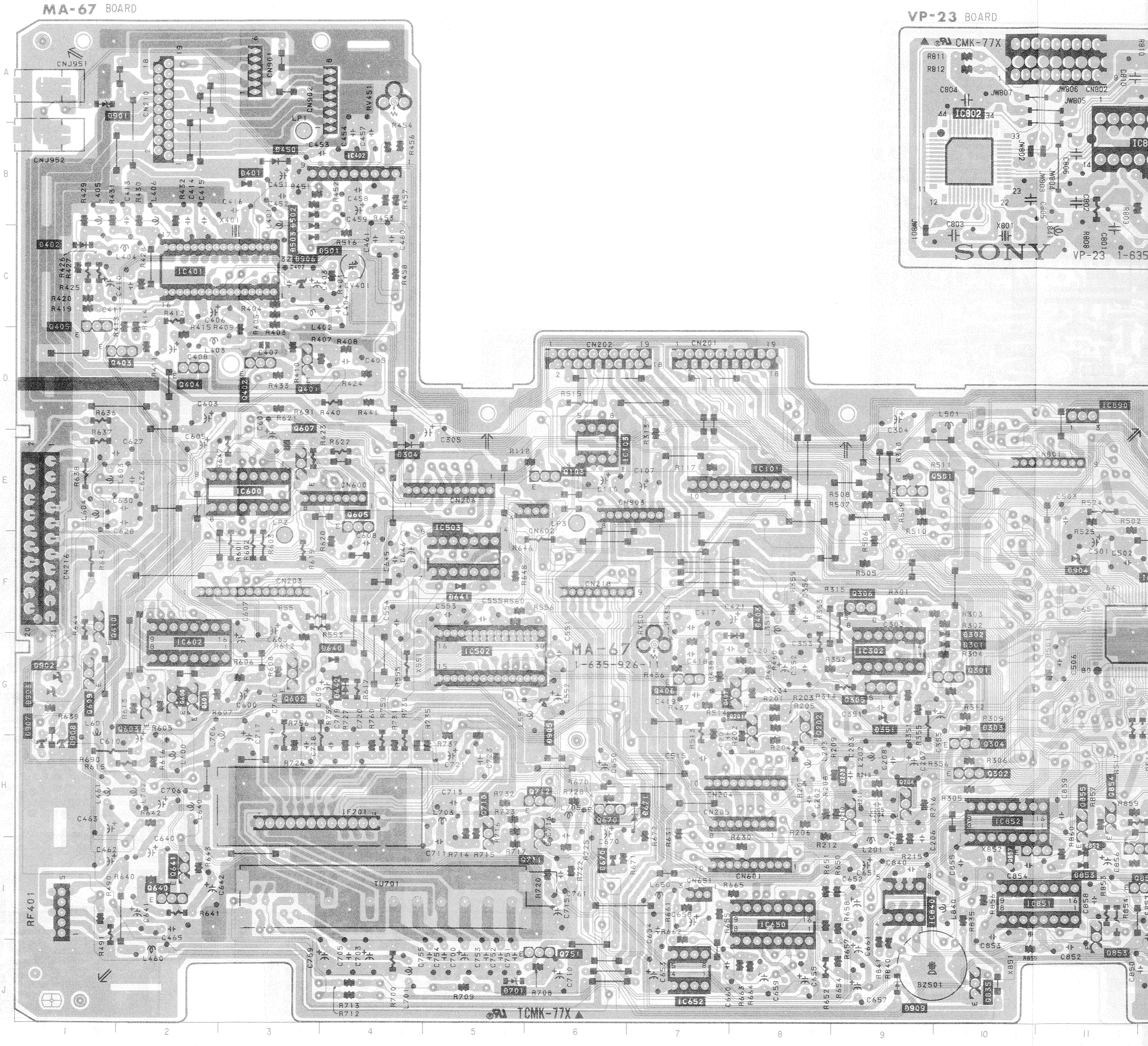


MA-67 (2/2) (SERVO, SYSTEM CONTROL), VP-23 (VPS CONTROL) PRINTED WIRING BOARDS

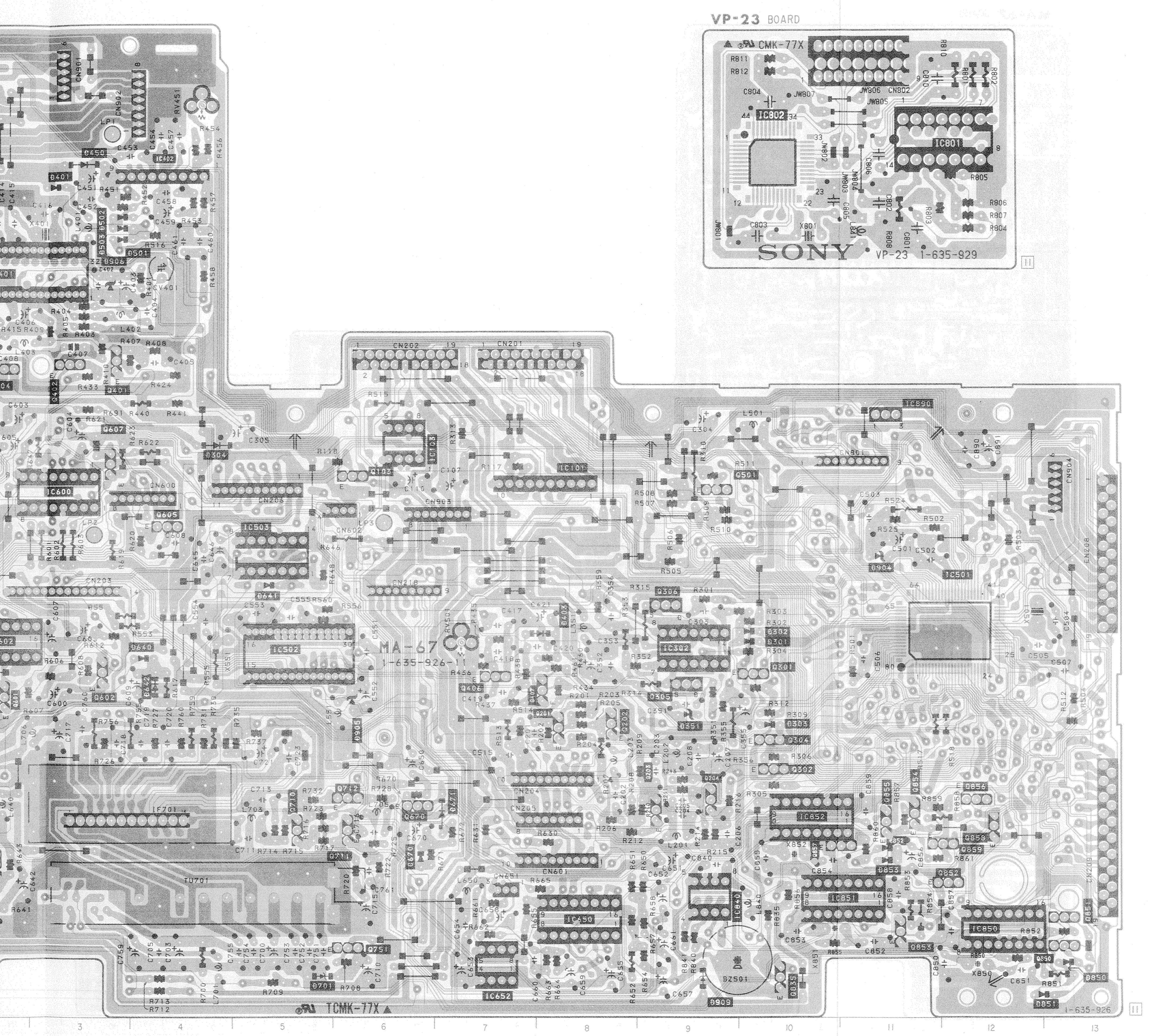
–Ref. No. MA-67 Board: 3,000 series, VP-23 Board: 6,000 series–

MA-67 BOARD

D301	I-12
D302	I-12
D303	I-11
D304	F-5
D351	J-11
D401	B-3
D402	C-1
D403	E-3
D404	C-3
D501	B-3
D502	B-3
D503	B-3
D504	E-11
D551	F-4
D601	H-9
D602	E-1
D603	J-8
D604	J-9
D670	F-6
D671	F-5
D701	J-6
D901	F-1
D902	G-1
D903	G-1
D951	G-2
D952	G-1
D953	G-1
IC101	F-8
IC103	E-6
IC302	I-11
IC401	C-2
IC402	H-11
IC501	E-10
IC502	E-4
IC601	J-7
IC702	J-12
IC801	E-12
IC802	G-12
Q103	E-7
Q201	I-10
Q202	I-10
Q203	J-9
Q204	J-10
Q301	I-11
Q302	I-12
Q304	H-11
Q401	D-3
Q402	E-2
Q403	D-1
Q404	D-2
Q405	D-1
Q406	E-2
Q407	F-2
Q451	H-12
Q501	E-9
Q515	H-13
Q601	H-7
Q602	H-8
Q603	H-7
Q604	I-9
Q608	H-9
Q609	I-1
Q610	H-2
Q670	F-5
Q710	G-3
Q711	G-4
Q712	G-5
Q751	J-6
Q951	G-1
Q952	H-2


MA-67 BOARD
VP-23 BOARD
CMK-77X
SONY
VP-23 1-635
MA-67 1-635-926-1
TCMK-77X
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11

VP-23 BOARD


CMK-77X
IC802
IC801
SONY
VP-23 1-635-929
MA-67
1-635-926-11
IC501
IC302
IC502
IC852
IC851
IC850
IC450
IC652
IC840
IC600
IC503
IC101
IC103
IC890
IF701
TU701
BZ501
CN202
CN201
CN203
CN204
CN205
CN601
CN208
CN209
TCMK-77X
1-635-926
3
4
5
6
7
8
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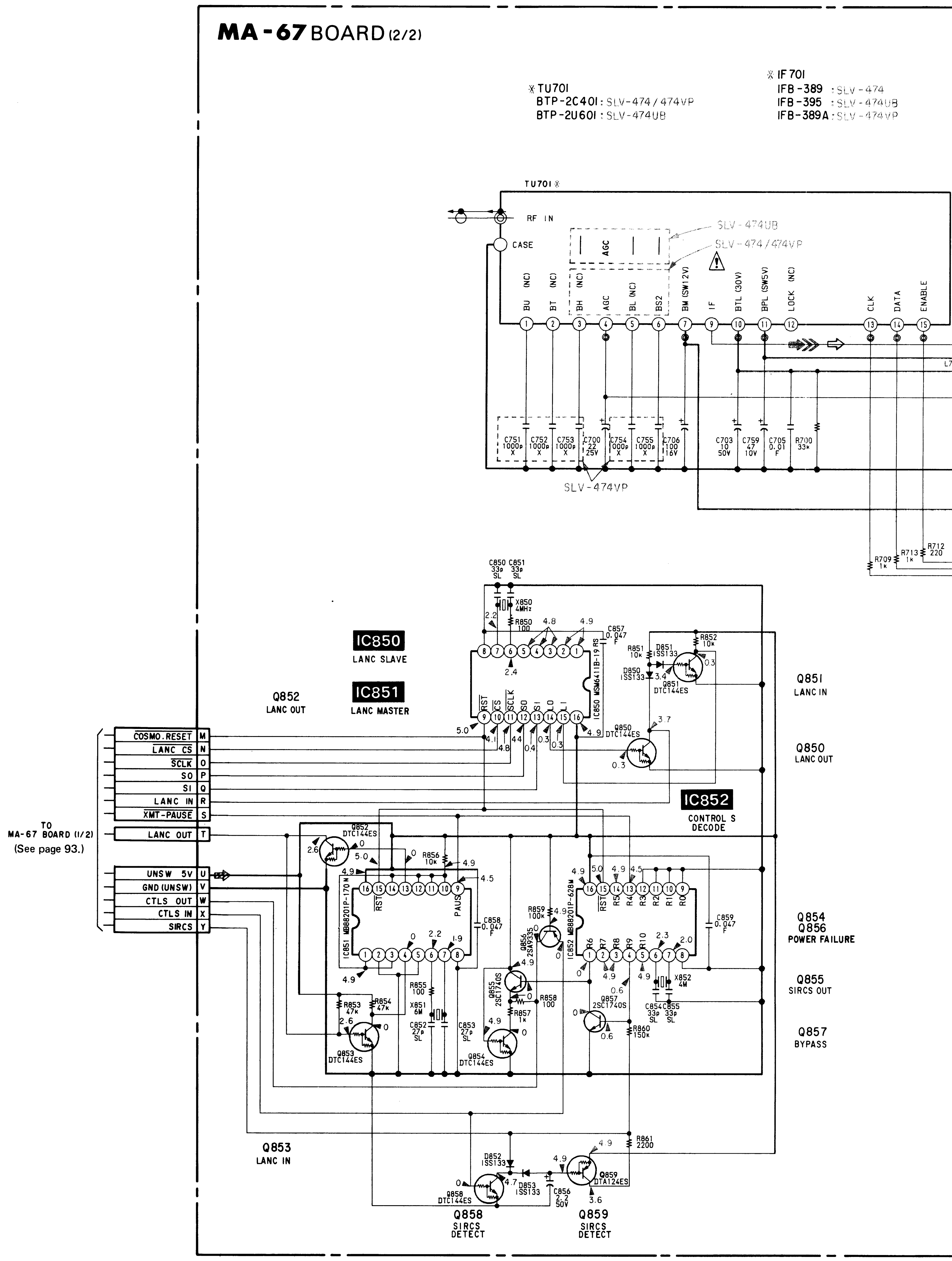
12
13

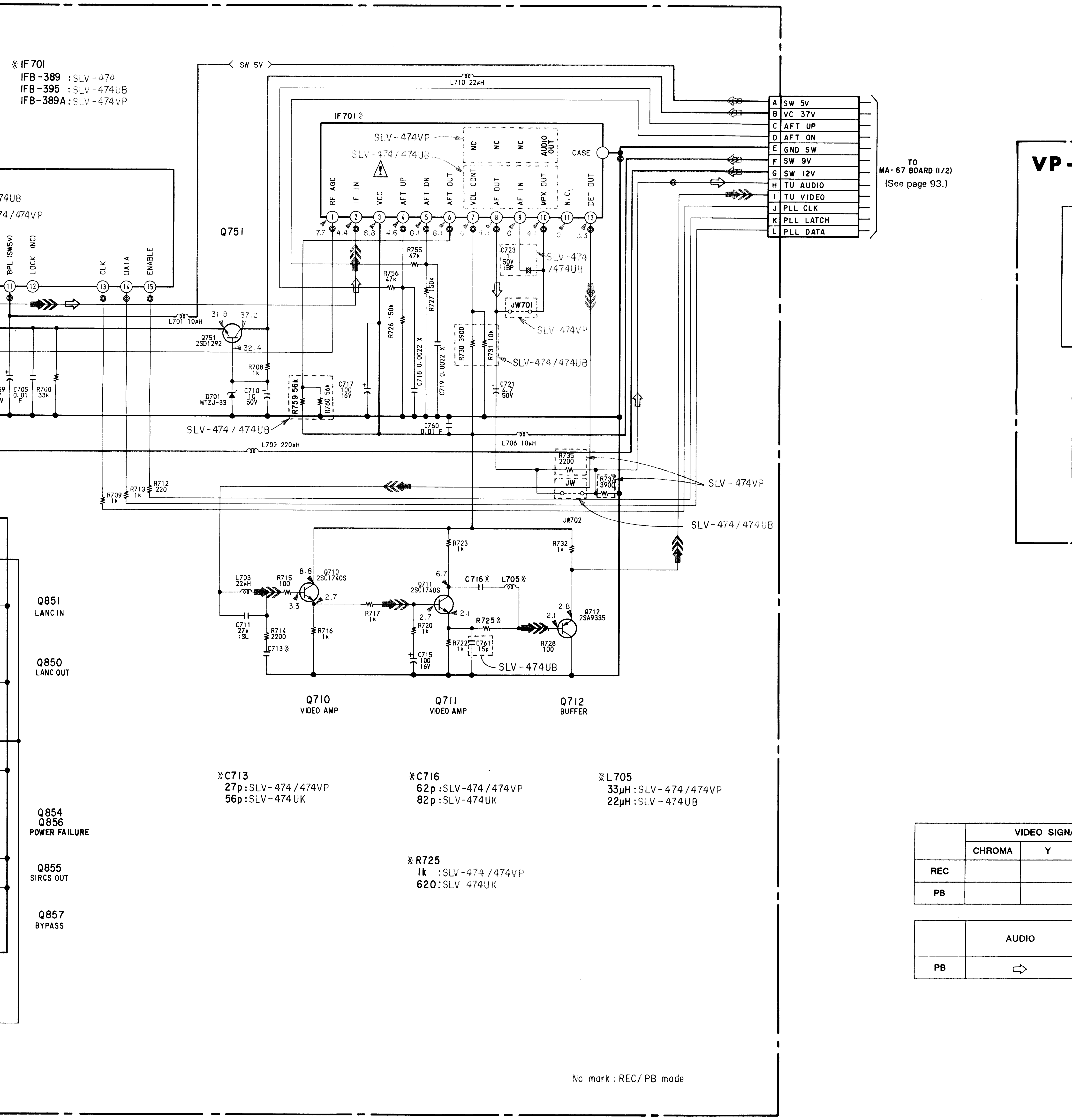
SERVO,SYSTEM CONTROL

SERVO,SYSTEM CONTROL

MA-67 (2/2) (SERVO, SYSTEM CONTROL), VP-23 (VPS CONTROL) SCHEMATIC DIAGRAMS

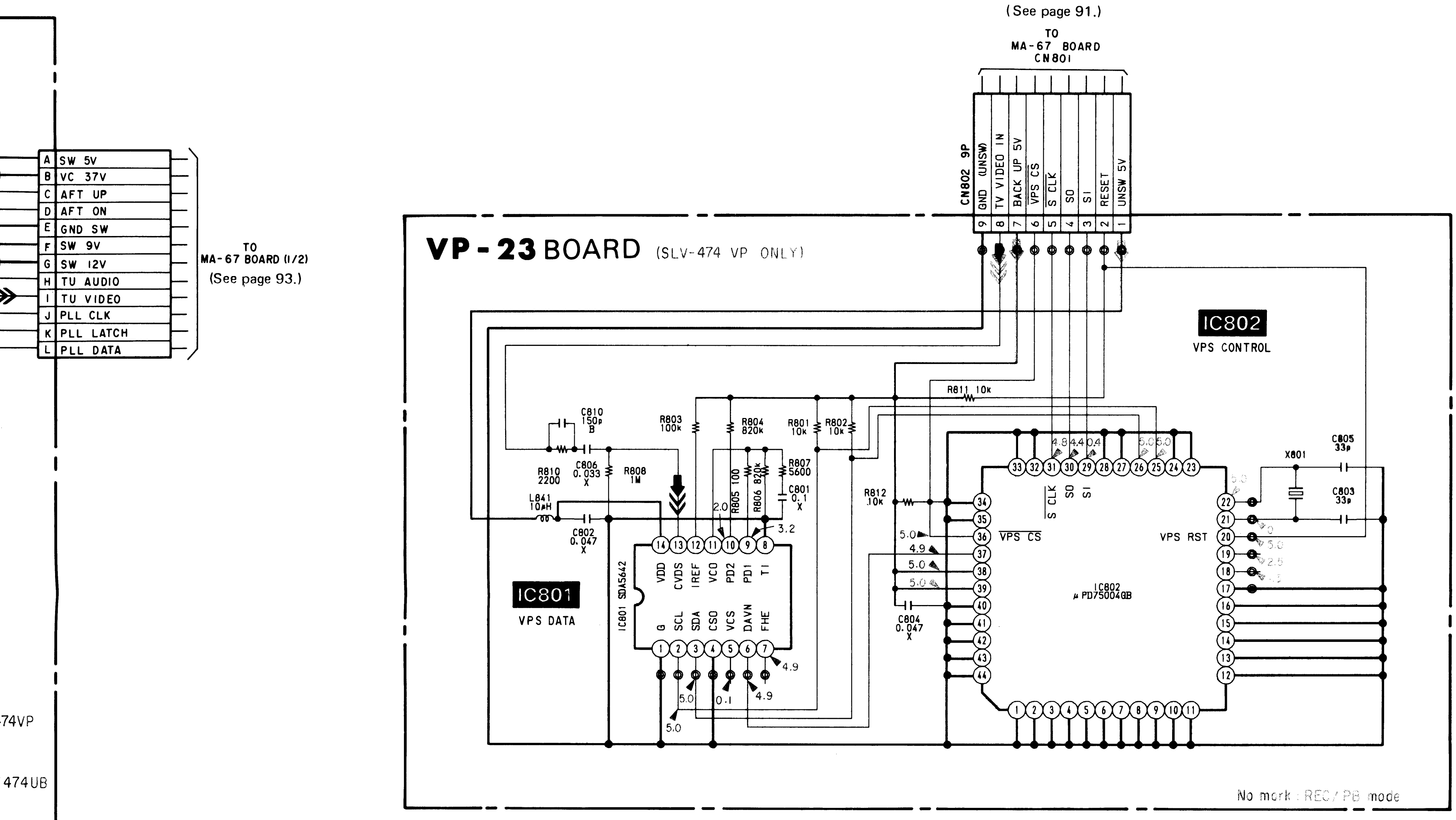
–Ref. No. MA-67 Board: 3,000 series, VP-23 Board: 6,000 series–


MA-67 BOARD (2/2)
※TU701
BTP-2C401 : SLV-474/474VP
BTP-2U601 : SLV-474UB
※IF701
IFB-389 : SLV-474
IFB-395 : SLV-474UB
IFB-389A : SLV-474VP
TU701※
RF IN
CASE
AGC
SLV-474UB
SLV-474/474VP
BU (NC)
BT (NC)
BH (NC)
AGC
BL (NC)
BS2
BM (SW12V)
IF
BTL (30V)
BPL (SW5V)
LOCK (NC)
CLK
DATA
ENABLE
C751 1000p X
C752 1000p X
C753 1000p X
C700 22 25V
C754 1000p X
C755 1000p X
C706 100 16V
C703 10 50V
C759 47 10V
C705 0.01 F
R700 33k
SLV-474VP
R709 1k
R713 1k
R712 220
C850 33p SL
C851 33p SL
X850 4MHz
R850 100
C857 0.047 F
IC850 MSM6411B-19RS
IC850
LANC SLAVE
IC851
LANC MASTER
Q852
LANC OUT
R851 10k
D851 1SS133
R852 10k
D850 1SS133
Q851 DTC144ES
Q850 DTC144ES
Q851
LANC IN
Q850
LANC OUT
IC852
CONTROL S
DECODE
COSMO.RESET M
LANC CS N
SCLK O
SO P
SI Q
LANC IN R
XMT-PAUSE S
LANC OUT T
UNSW 5V U
GND (UNSW) V
CTLS OUT W
CTLS IN X
SIRCS Y
TO
MA-67 BOARD (1/2)
(See page 93.)
Q852 DTC144ES
R856 10k
IC851 MB88201P-170M
RST
PAUSE
C858 0.047 F
R859 100k
Q856 2SA1235
IC852 MB88201P-628M
C859 0.047 F
Q854
Q856
POWER FAILURE
R853 47k
R854 47k
R855 100
X851 6M
C852 27p SL
C853 27p SL
Q853 DTC144ES
Q855 2SC1740S
R857 1k
R858 100
Q854 DTC144ES
Q857 2SC1740S
R860 150k
X852 4M
C854 33p SL
C855 33p SL
Q855
SIRCS OUT
Q857
BYPASS
Q853
LANC IN
R861 2200
D852 1SS133
D853 1SS133
C856 2.2 50V
Q858 DTC144ES
Q859 DTA124ES
Q858
SIRCS
DETECT
Q859
SIRCS
DETECT


※IF701
IFB-389 : SLV-474
IFB-395 : SLV-474UB
IFB-389A : SLV-474VP
SW 5V
L710 22μH
IF701※
SLV-474VP
SLV-474/474UB
NC NC NC AUDIO OUT
CASE
RF AGC
IF IN
VCC
AFT UP
AFT DN
AFT OUT
VOL CONT
AF OUT
AF IN
MPX OUT
N.C.
DET OUT
7.7 4.4 8.8 4.6 0.1 8.1 0 4.1 0 4.1 0 3.3
A SW 5V
B VC 37V
C AFT UP
D AFT ON
E GND SW
F SW 9V
G SW 12V
H TU AUDIO
I TU VIDEO
J PLL CLK
K PLL LATCH
L PLL DATA
TO MA-67 BOARD (1/2)
(See page 93.)
VP-
74UB
74/474VP
BPL (SW5V)
LOCK (NC)
CLK
DATA
ENABLE
Q751
R755 47k
R756 47k
R727 150k
R726 150k
C723 1 50V :BP
SLV-474 /474UB
JW701
SLV-474VP
R730 3900
R731 10k
SLV-474/474UB
C718 0.0022 X
C719 0.0022 X
L701 10μH
31.8 37.2
Q751 2SD1292
32.4
R708 1k
D701 MTZJ-33
C710 10 50V
C705 0.01 F
R700 33k
R759 56k
R760 56k
C717 100 16V
C721 4.7 50V
C760 0.01 F
SLV-474/474UB
L702 220μH
L706 10μH
R735 2200
JW
R737 3900
SLV-474VP
JW702
SLV-474/474UB
R709 1k
R713 1k
R712 220
R723 1k
R732 1k
L703 22μH
R715 100
8.8
Q710 2SC1740S
3.3
2.7
6.7
Q711 2SC1740S
C716※
L705※
R717 1k
2.7
R720 1k
2.1
R725※
2.8
2.1
Q712 2SA9335
C711 27p :SL
R714 2200
C713※
R716 1k
R722 1k
C761 15p
SLV-474UB
C715 100 16V
R728 100
Q851 LANC IN
Q850 LANC OUT
Q854
Q856 POWER FAILURE
Q855 SIRCS OUT
Q857 BYPASS
Q710 VIDEO AMP
Q711 VIDEO AMP
Q712 BUFFER
※C713
27p:SLV-474/474VP
56p:SLV-474UK
※C716
62p:SLV-474/474VP
82p:SLV-474UK
※L705
33μH:SLV-474/474VP
22μH:SLV-474UB
※R725
1k :SLV-474/474VP
620:SLV 474UK
No mark : REC/PB mode

	VIDEO SIGN	
	CHROMA	Y
REC		
PB		

	AUDIO
PB	⇨

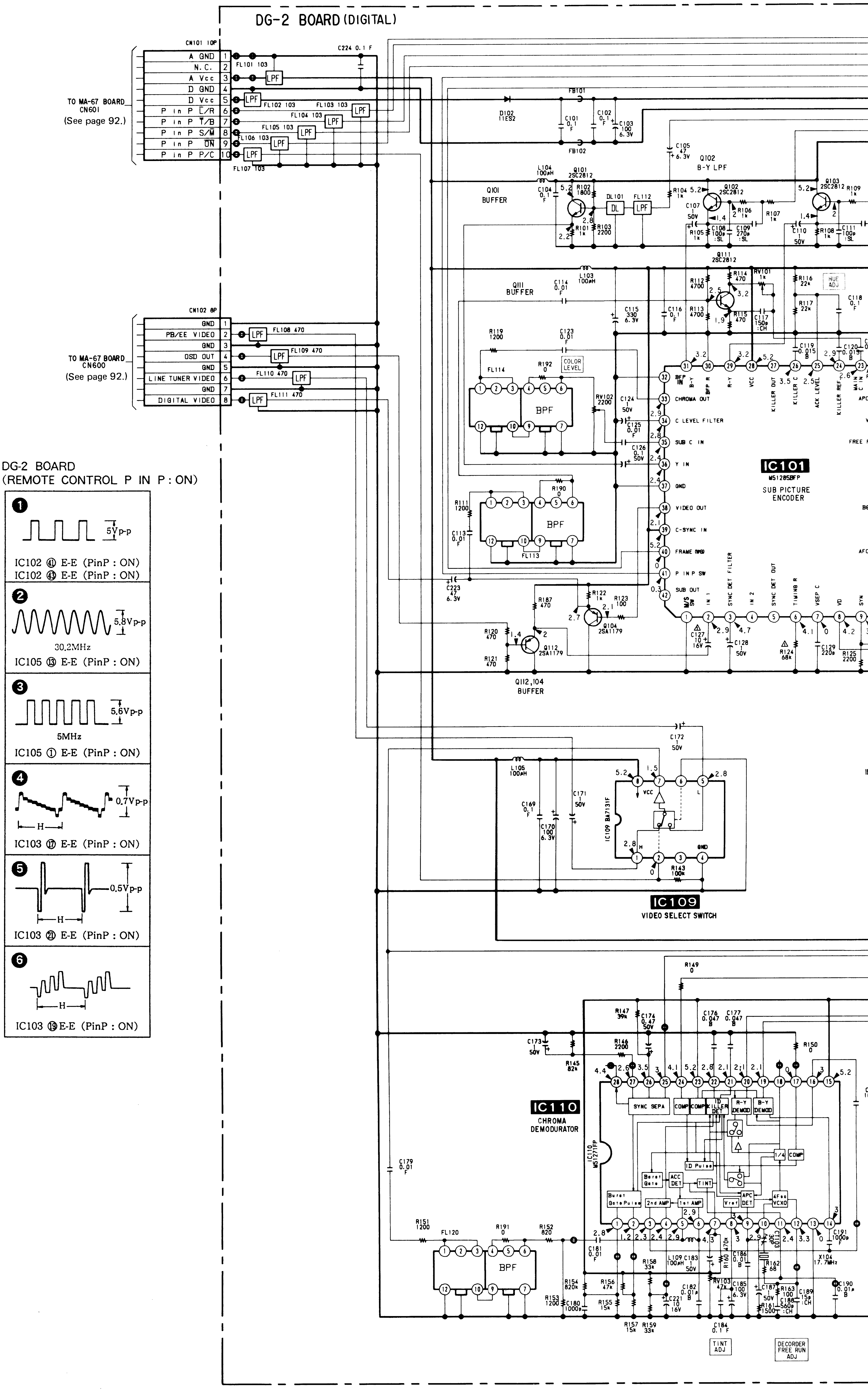

(See page 91.)
TO
MA-67 BOARD
CN801
CN802 9P
GND (UNSW)
TV VIDEO IN
BACK UP 5V
VPS CS
S CLK
SO
SI
RESET
UNSW 5V
A SW 5V
B VC 37V
C AFT UP
D AFT ON
E GND SW
F SW 9V
G SW 12V
H TU AUDIO
I TU VIDEO
J PLL CLK
K PLL LATCH
L PLL DATA
TO
MA-67 BOARD (1/2)
(See page 93.)
74VP
474UB
VP-23 BOARD (SLV-474 VP ONLY)
IC802
VPS CONTROL
IC801
VPS DATA
IC801 SDA5642
VDD
CVDS
IREF
VCO
PD2
PD1
TI
G
SCL
SDA
CSO
VCS
DAVN
FHE
C810 150p B
R803 100k
R804 820k
R801 10k
R802 10k
R810 2200
C806 0.033 X
R808 1M
R805 100
R806 820k
R807 5600
C801 0.1 X
L841 10μH
C802 0.047 X
R811 10k
R812 10k
C804 0.047 X
X801
C805 33p
C803 33p
VPS CS
VPS RST
S CLK
SO
SI
IC802
μPD75004GB
2.0
3.2
4.9
5.0
0.1
4.8
4.4
0.4
No mark : REC/PB mode

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡»
PB			

	AUDIO
PB	⇨

DG-2 (DIGITAL PROCESS) SCHEMATIC DIAGRAM

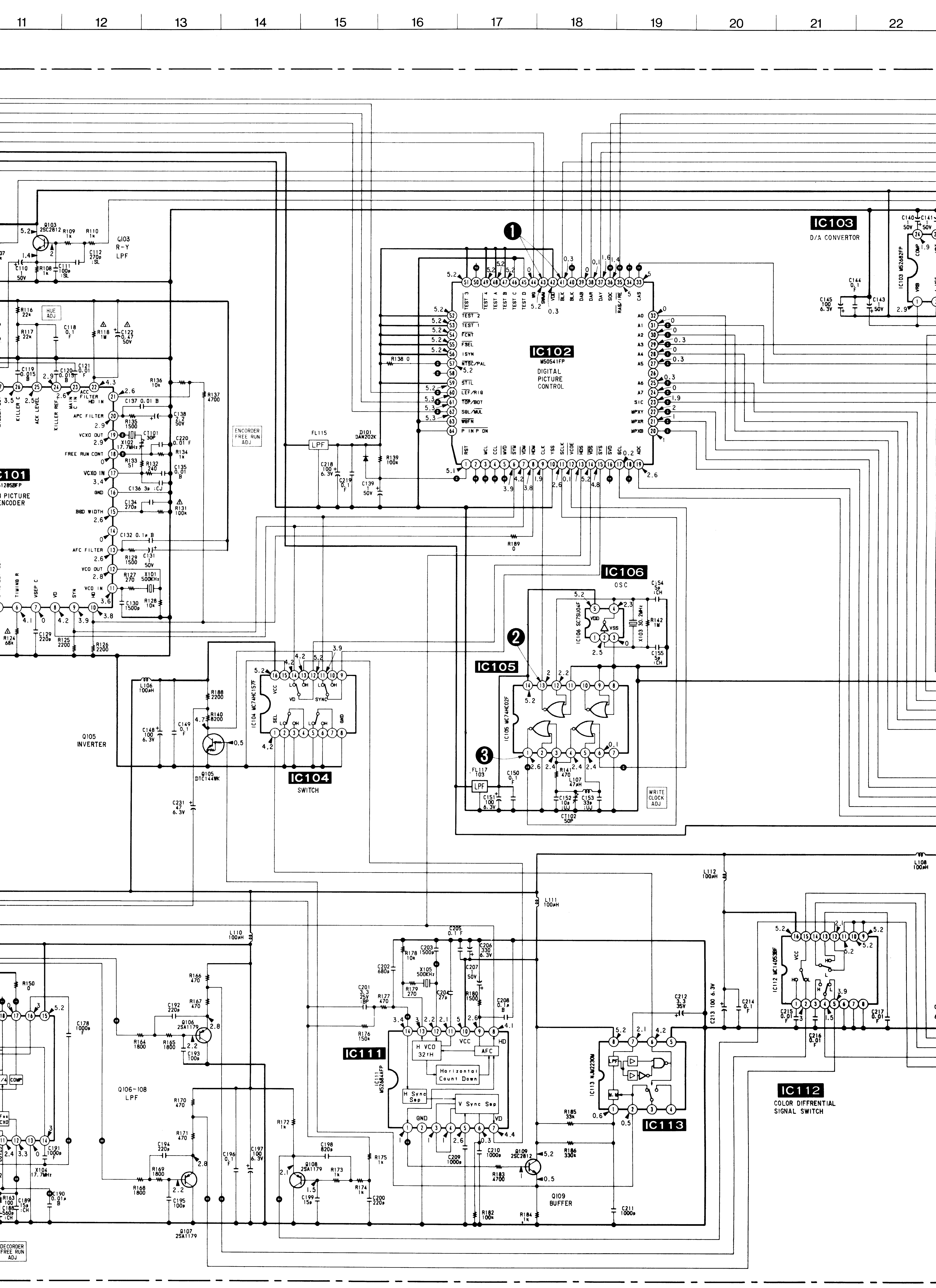
–Ref. No. DG-2 Board: 5,000 series–



DG-2 BOARD (DIGITAL)
CN101 10P
A GND 1
N.C. 2
A Vcc 3
D GND 4
D Vcc 5
P in P L̅/R 6
P in P T̅/B 7
P in P S/M̅ 8
P in P O̅N̅ 9
P in P P/C 10
TO MA-67 BOARD CN601
(See page 92.)
CN102 8P
GND 1
PB/EE VIDEO 2
GND 3
OSD OUT 4
GND 5
LINE TUNER VIDEO 6
GND 7
DIGITAL VIDEO 8
TO MA-67 BOARD CN600
(See page 92.)
LPF
BPF
Q101 BUFFER
Q102 B-Y LPF
Q111 BUFFER
Q112,104 BUFFER
COLOR LEVEL
HUE ADJ
IC101
M51285BFP
SUB PICTURE ENCODER
IC109
VIDEO SELECT SWITCH
IC109 BA7131F
IC110
CHROMA DEMODURATOR
IC110 M51271FP
SYNC SEPA
KILLER DET
R-Y DEMOD
B-Y DEMOD
ID Pulse
ACC DET
Burst Gate Pulse
2nd AMP
1st AMP
APC DET
4Fsc VCXO
TINT ADJ
DECORDER FREE RUN ADJ
DG-2 BOARD
(REMOTE CONTROL P IN P : ON)
❶ 5Vp-p
IC102 ㊶ E-E (PinP : ON)
IC102 ㊸ E-E (PinP : ON)
❷ 5.8Vp-p
30.2MHz
IC105 ⑬ E-E (PinP : ON)
❸ 5.6Vp-p
5MHz
IC105 ① E-E (PinP : ON)
❹ 0.7Vp-p
H
IC103 ⑰ E-E (PinP : ON)
❺ 0.5Vp-p
H
IC103 ㉑ E-E (PinP : ON)
❻ H
IC103 ⑲ E-E (PinP : ON)

DG-2 Board

D101	E-9
D102	D-12
IC101	C-3
IC102	D-5
IC103	B-5
IC104	E-3
IC105	D-6
IC106	E-6
IC107	B-8
IC108	A-5
IC109	C-2
IC110	A-2
IC111	E-2
IC112	A-4
IC113	E-3
Q101	B-9
Q102	C-9
Q103	C-9
Q104	D-12
Q105	E-10
Q106	A-10
Q107	B-10
Q108	C-11
Q109	D-12
Q111	C-10
Q112	C-12



11
12
13
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16
17
18
19
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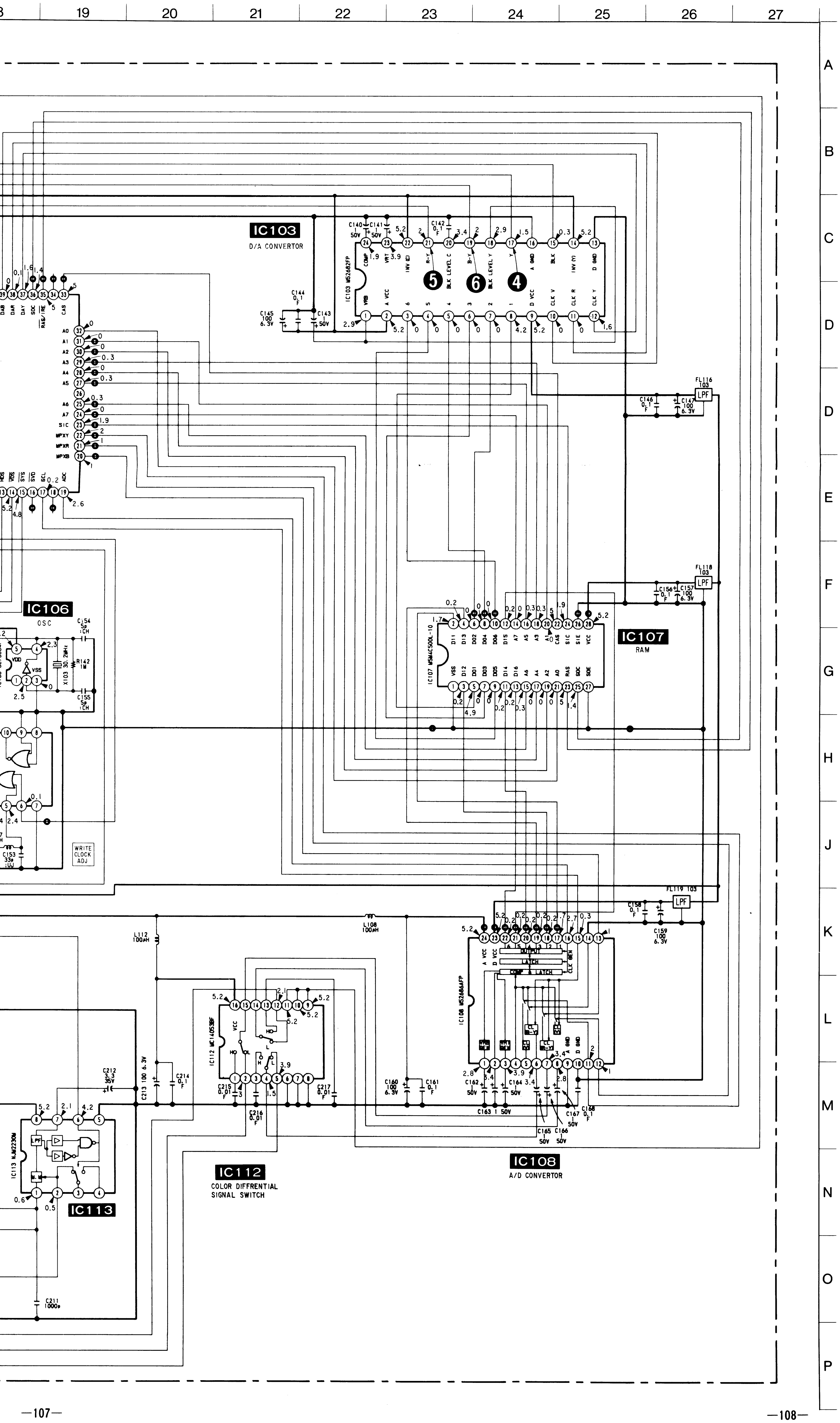
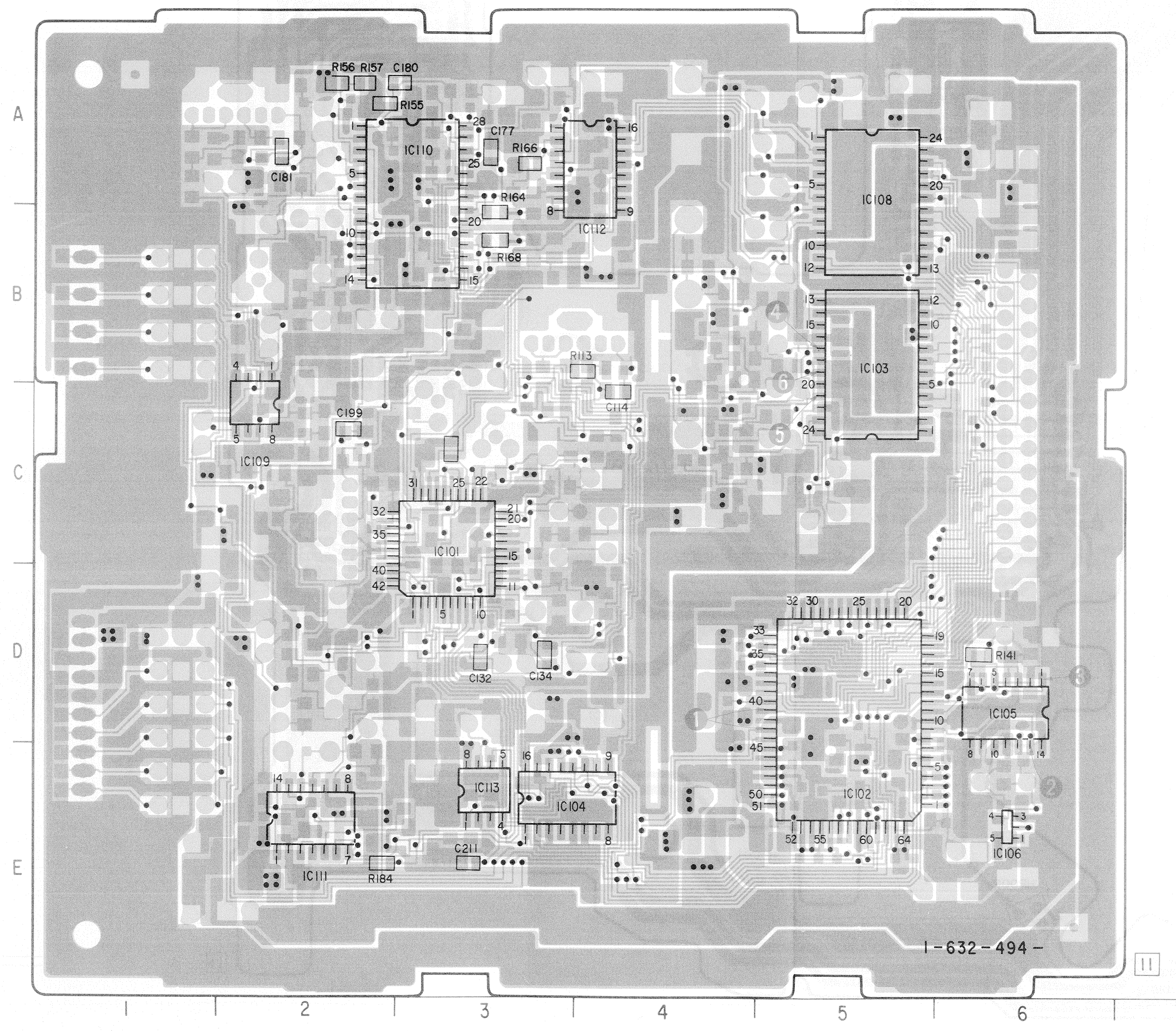
21
22
IC102
M50541FP
DIGITAL PICTURE CONTROL
IC103
D/A CONVERTOR
C101
1285BFP
PICTURE ENCODER
HUE ADJ
ENCORDER FREE RUN ADJ
Q103 R-Y LPF
Q103 2SC2812
IC106
OSC
IC106 SC7SU04F
X103 30.2MHz
IC105
IC105 MC74HC02F
WRITE CLOCK ADJ
IC104
SWITCH
IC104 MC74HC157F
Q105 INVERTER
Q105 DTC144WK
FL115 LPF
D101 DAN202K
FL117 103 LPF
CT102 50P
IC111
IC111 M52084AFP
H VCO 32fH
AFC
Horizontal Count Down
H Sync Sep
V Sync Sep
X105 500KHz
IC113
IC113 NJM2230M
Q109 BUFFER
Q109 2SC2812
IC112
COLOR DIFFRENTIAL SIGNAL SWITCH
IC112 MC14053BF
Q106-108 LPF
Q106 2SA1179
Q107 2SA1179
Q108 2SA1179
DECORDER FREE RUN ADJ
X104 17.7MHz
X102 17.7MHz
X101 500KHz
IC103 M52682FP
L106 100μH
L110 100μH
L111 100μH
L112 100μH
L108 100μH
L107 47μH


19
20
21
22
23
24
25
26
27
A
B
C
D
E
F
G
H
J
K
L
M
N
O
P
IC103
D/A CONVERTOR
IC103 M52682FP
COMP
VRT
INV (C)
R-Y
BLK LEVEL C
B-Y
BLK LEVEL Y
Y
A GND
BLK
INV (Y)
D GND
VRB
A VCC
D VCC
CLK V
CLK R
CLK Y
C140 1 50V
C141 1 50V
C142 0.1 F
C143 1 50V
C144 0.1 F
C145 100 6.3V
5
6
4
DAB
DAR
DAY
SDC
RAS/IRE
CAS
A0
A1
A2
A3
A4
A5
A6
A7
SIC
MPXY
MPXR
MPXB
HDS
VDS
SYS
SVD
SCL
ADC
IC106
OSC
C154 5p CH
C155 5p CH
X103 30.2MHz
R142 1M
VDD
VSS
C153 33p UJ
WRITE CLOCK ADJ
FL116 103
LPF
C146 0.1 F
C147 100 6.3V
FL118 103
C156 0.1 F
C157 100 6.3V
IC107
RAM
IC107 M5M4C500L-10
D11
D13
D02
D04
D06
D15
A7
A5
A3
A1
CAS
SIC
SIE
VCC
VSS
D12
D01
D03
D05
D14
D16
A6
A4
A2
A0
RAS
SOC
SOE
FL119 103
C158 0.1 F
C159 100 6.3V
L108 100μH
L112 100μH
IC108
A/D CONVERTOR
IC108 M52686AFP
OUTPUT
LATCH
COMP & LATCH
CLK
OEN
A VCC
D VCC
A GND
D GND
C160 100 6.3V
C161 0.1 F
C162 1 50V
C163 1 50V
C164 1 50V
C165 1 50V
C166 1 50V
C167 0.1 50V
C168 0.1 F
IC112
COLOR DIFFRENTIAL SIGNAL SWITCH
IC112 MC14053BF
VCC
C212 3.3 35V
C213 100 6.3V
C214 0.1 F
C215 0.01 F
C216 0.01 F
C217 0.01 F
IC113
IC113 NJM2230M
LPF
C211 1000p

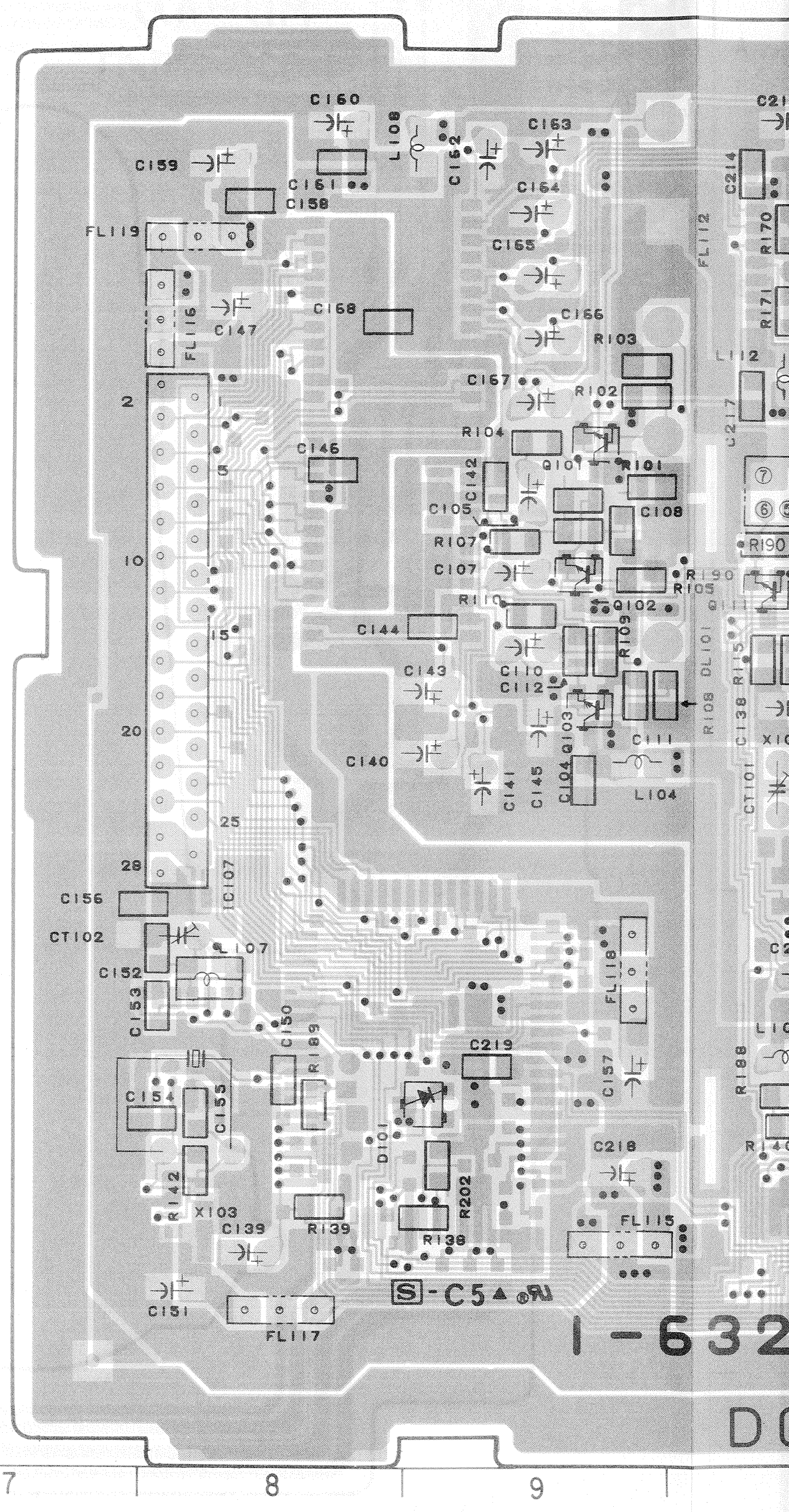
DG-2 (DIGITAL PROCESS) PRINTED WIRING BOARD

—Ref. No. DG-2 Board: 5,000 series—

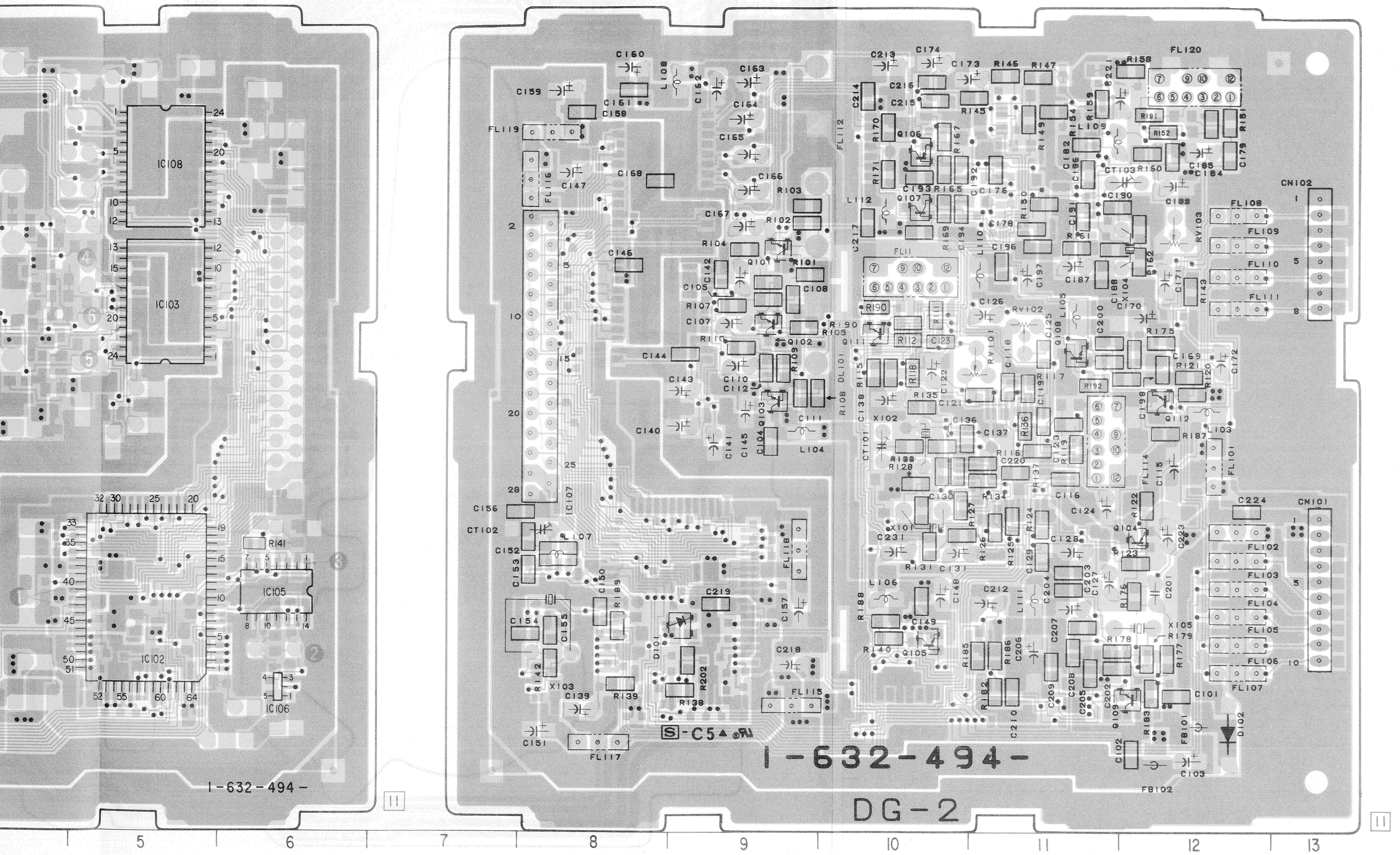
DG-2 BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
3
4
5
6
R156
R157
C180
R155
IC110
C177
R166
R164
R168
C181
IC112
IC108
IC103
IC109
C199
R113
C114
IC101
C132
C134
IC102
R141
IC105
IC106
IC113
IC104
IC111
R184
C211
1-632-494-
11

DG-2 BOARD (CONDUCTOR SIDE)


7
8
9
C160
C159
L108
C162
C163
C161
C158
C164
C165
FL119
FL116
C147
C168
C166
R103
C167
R102
R104
Q101
R101
C145
C142
C105
C108
R107
C107
R110
Q102
C144
C143
C110
C112
Q103
C111
C140
C141
C145
C104
L104
IC107
C156
CT102
C152
C153
L107
FL118
C154
C155
C150
R189
C219
C157
R142
X103
C139
R139
D101
R202
R138
C218
FL115
C151
FL117
S-C5
1-632

DG-2 BOARD (CONDUCTOR SIDE)


IC108
IC103
IC102
IC105
IC106
R141
1-632-494-
C160
C159
C161
C158
FL119
FL116
C147
C168
C146
C156
CT102
L107
C152
C153
C154
C155
C150
R189
X103
C139
R139
R142
C151
FL117
C219
D101
R202
R138
C218
FL115
FL118
C157
IC107
C163
C164
C165
C166
R103
C167
R102
R104
Q101
R101
C142
C105
R107
C107
R110
Q102
C108
R105
C144
C143
C110
C112
C140
C141
C145
C104
Q103
R109
R108
C111
L104
L108
C152
FL112
C213
C174
C173
R146
R147
R158
FL120
C214
C216
C215
R145
R170
Q106
R167
R149
R171
Q107
C193
R165
C192
C176
L112
C217
FL11
R169
C194
L110
C178
C196
C197
R190
R111
R112
C123
Q111
DL101
R115
R118
R135
C122
C121
RV101
RV102
C126
C125
L105
C118
Q108
C200
C119
C117
R136
C137
C136
X102
CT101
R133
R128
C138
C220
R116
R137
C123
R119
R134
C130
X101
C231
R131
R127
R126
R125
R124
C129
C131
L106
C148
R188
C149
R140
Q105
C212
L111
C204
C203
C127
R185
R186
C206
C207
R182
C210
C209
C208
C205
C202
Q109
R183
FB101
FB102
C102
C103
D102
C101
R178
R179
R177
X105
R176
C201
R123
Q104
C223
C124
R122
C116
C128
R192
C198
Q112
R187
L103
FL101
FL114
C115
C224
CN101
FL102
FL103
FL104
FL105
FL106
FL107
R175
C169
R121
R120
C172
C170
C188
X104
C162
C171
R143
C187
R161
C191
C190
C189
RV103
R130
C182
C186
CT103
R160
C185
C184
R154
L109
R159
C221
R191
R152
C179
R151
CN102
FL108
FL109
FL110
FL111
DG-2
S-C5
1-632-494-
11
5
6
7
8
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10
11
12
13

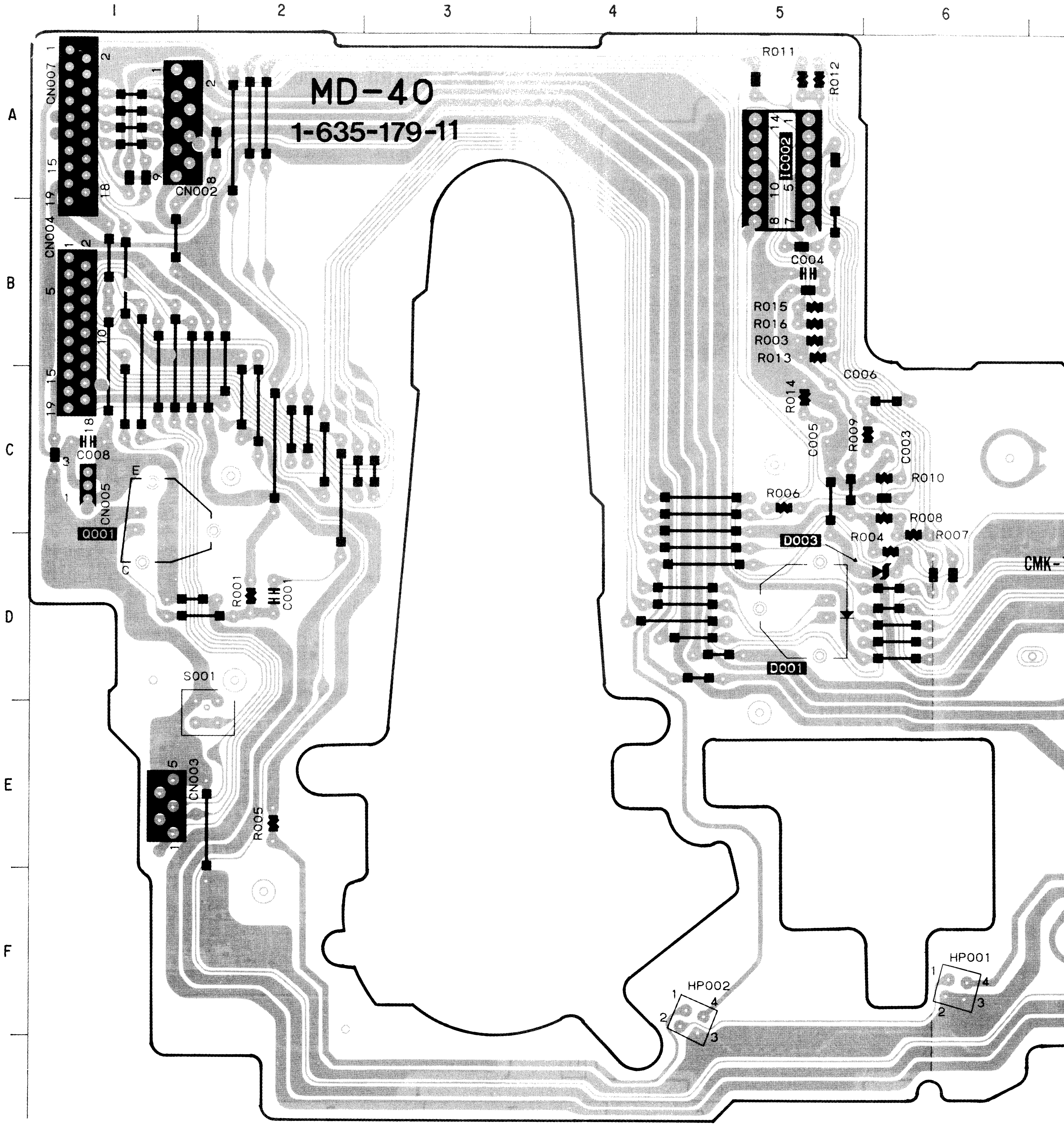
MD-40 (MECHANISM DRIVE) PRINTED WIRING BOARD

–Ref. No. MD-40 Board: 4,000 series–

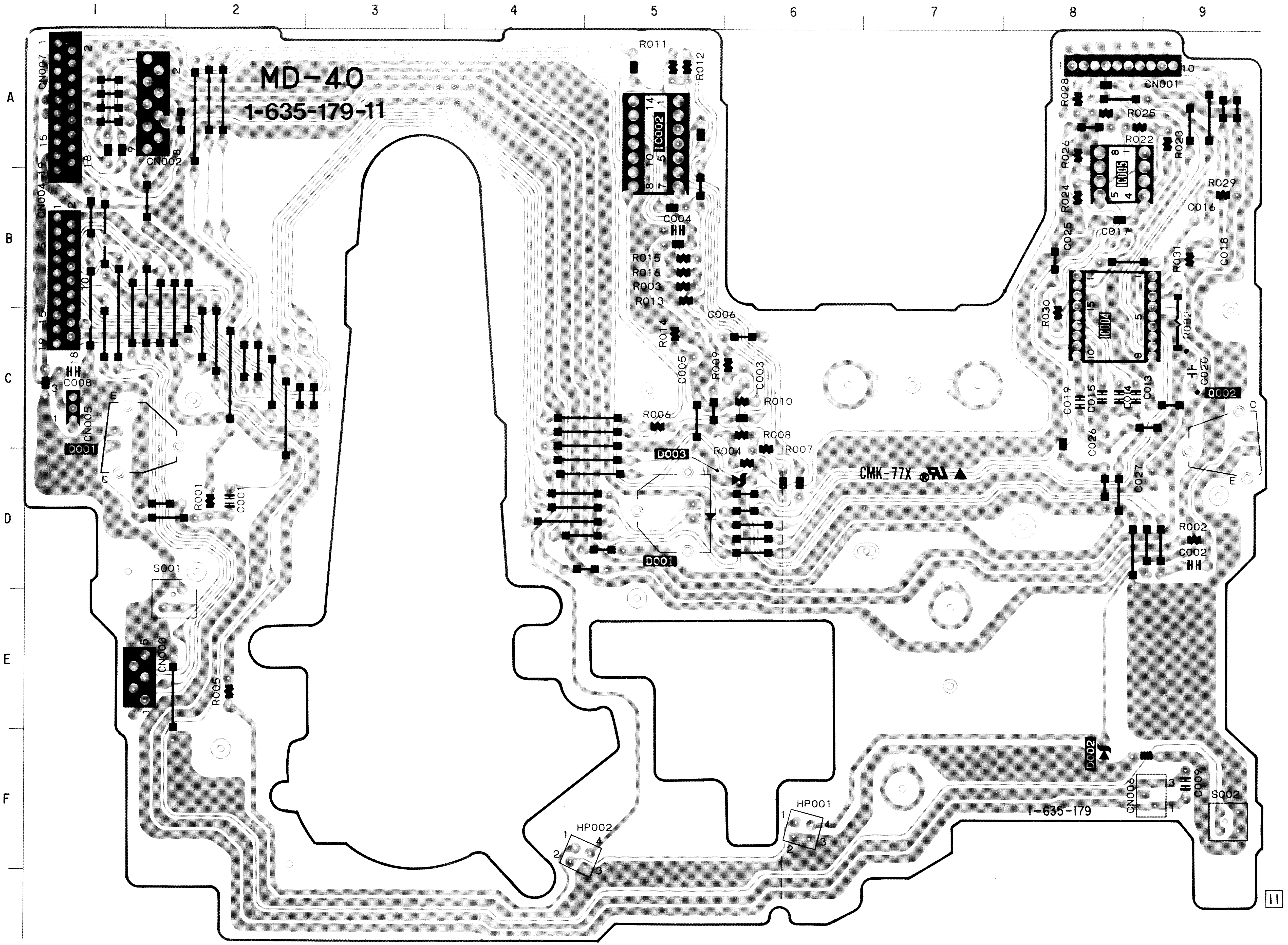
MD-40 BOARD

D001	D-5
D002	F-8
D003	D-6
IC002	B-5
IC004	C-8
IC005	B-8
Q001	C-1
Q002	D-9

MD-40 BOARD


1
2
3
4
5
6
A
B
C
D
E
F
MD-40
1-635-179-11
CN007
CN002
CN004
CN005
CN003
C008
Q001
R001
C001
S001
R005
R011
R012
IC002
C004
R015
R016
R003
R013
R014
C006
C005
R009
C003
R010
R006
R008
R004
R007
D003
D001
CMK-
HP001
HP002
E
C

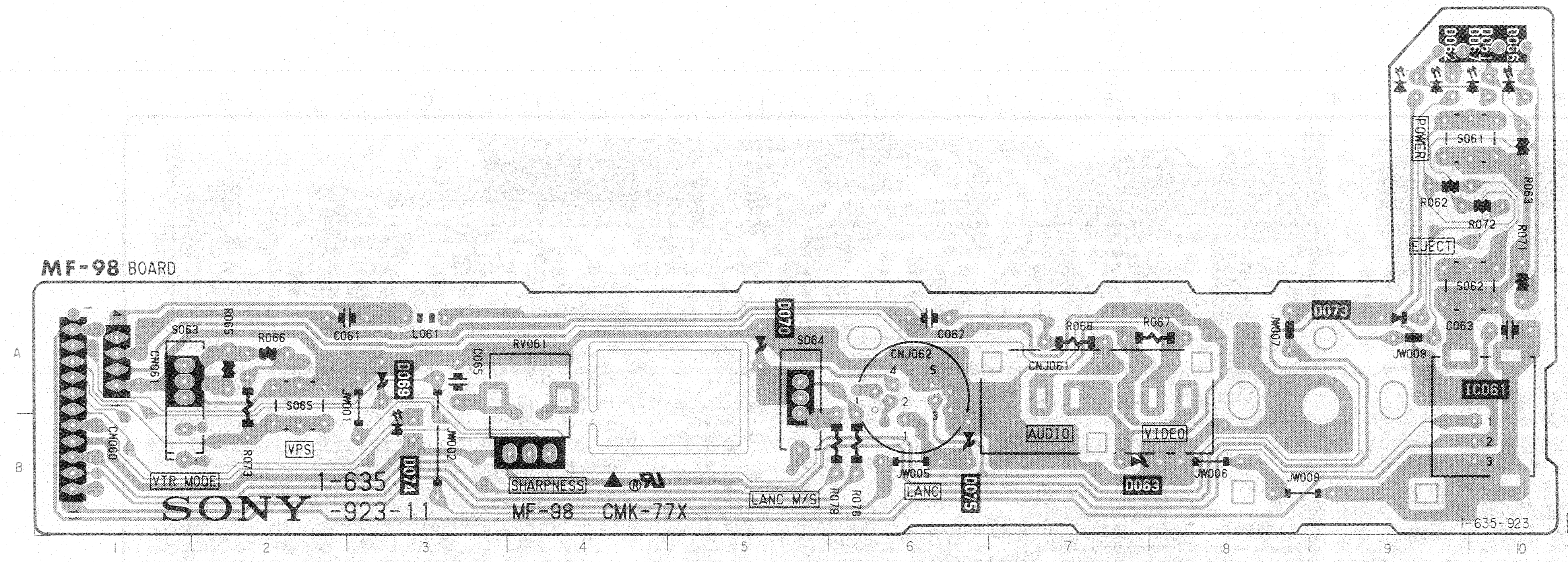
MD-40 BOARD


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
MD-40
1-635-179-11
CN007
CN002
CN004
CN005
CN003
CN001
CN006
C008
Q001
Q002
R001
C001
S001
S002
R005
R011
R012
IC002
C004
R015
R016
R003
R013
R014
C006
C005
R009
C003
R010
R006
R008
R004
R007
D003
D001
D002
CMK-77X
R028
R025
R022
R023
R026
IC005
R024
R029
C016
C025
C017
C018
R031
R030
IC004
R032
C020
C019
C015
C014
C013
C026
C027
R002
C002
C009
HP001
HP002
1-635-179
E
C
11

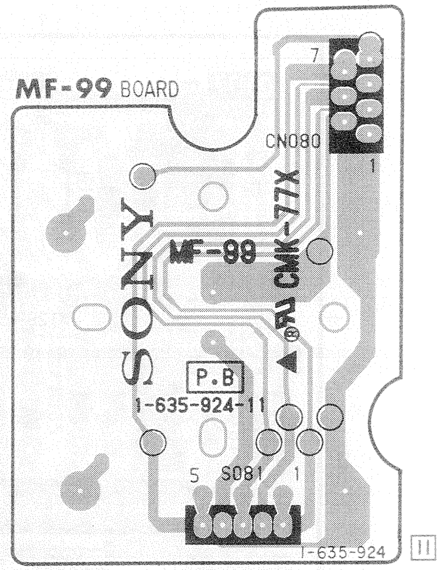
MF-98 (FUNCTION, LINE IN 2), MF-99 (SHUTTLE SEARCH DIAL), MF-100 (MODE CONTROL, INDICATOR), MJ-41 (MIC JACK) PRINTED WIRING BOARDS

–Ref. No. MF-98 Board: 8,300 series, MF-99 Board: 8,500 series, MF-100 Board: 8,000 series, MJ-41 Board: 8,700 series–

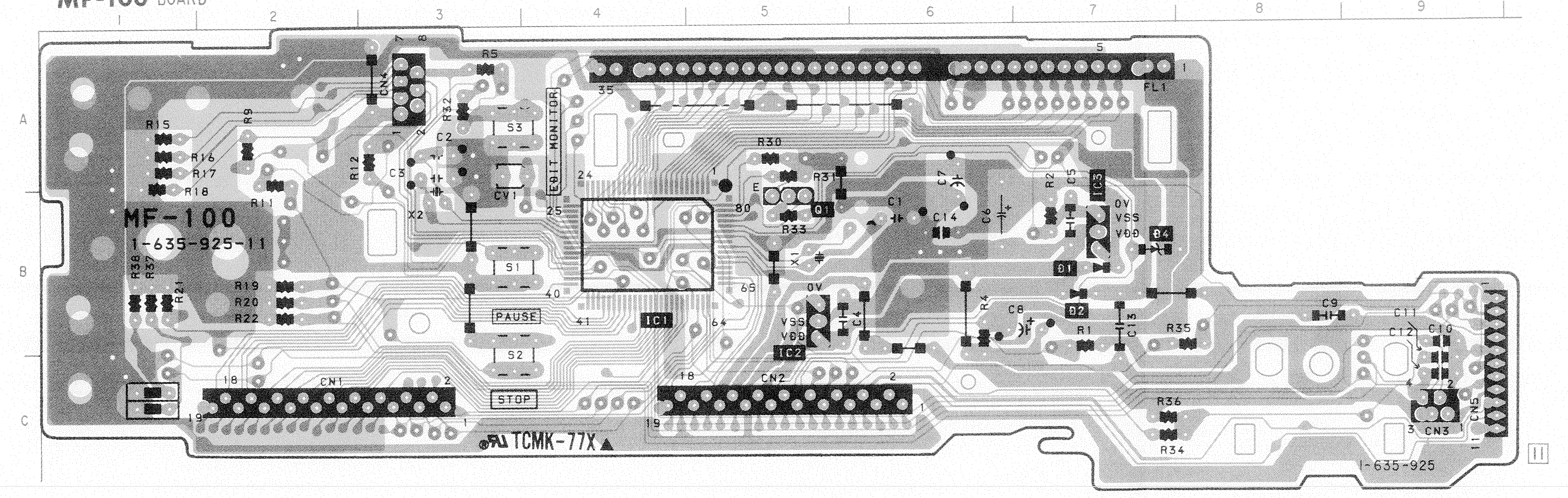
MF-98 BOARD


D066
D067
D068
D065
POWER
S061
R062
R063
R072
R071
EJECT
S062
D073
C063
JW009
IC061
JW007
S063
R065
R066
C061
L061
C065
RV061
D070
S064
C062
CNJ062
R068
R067
CNJ061
CN061
S065
JW001
D069
CN060
R073
VPS
VTR MODE
D074
JW002
SHARPNESS
LANC M/S
R079
R078
JW005
LANC
D075
AUDIO
VIDEO
D063
JW006
JW008
1-635-923-11
SONY
MF-98 CMK-77X
1-635-923
A
B
1
2
3
4
5
6
7
8
9
10

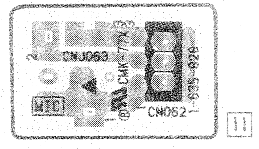
MF-99 BOARD


7
CN080
1
SONY
MF-99
CMK-77X
P.B
1-635-924-11
5
S081
1
1-635-924

MF-100 BOARD


1
2
3
4
5
6
7
8
9
A
B
C
R5
CN4
R32
S3
EDIT MONITOR
35
FL1
R15
R9
R16
R17
R18
R12
C3
C2
X2
CV1
24
25
R30
R31
Q1
R33
C7
C1
C14
C6
R2
C5
IC3
0V
VSS
VDD
D4
D1
D2
MF-100
1-635-925-11
R11
R19
R20
R22
R36
R37
R21
S1
PAUSE
S2
STOP
40
41
IC1
80
65
64
X1
VSS
VDD
IC2
C4
R4
C8
R1
C13
R35
C9
C11
C12
C10
CN5
18
CN1
19
CN2
R36
R34
CN3
TCMK-77X
1-635-925

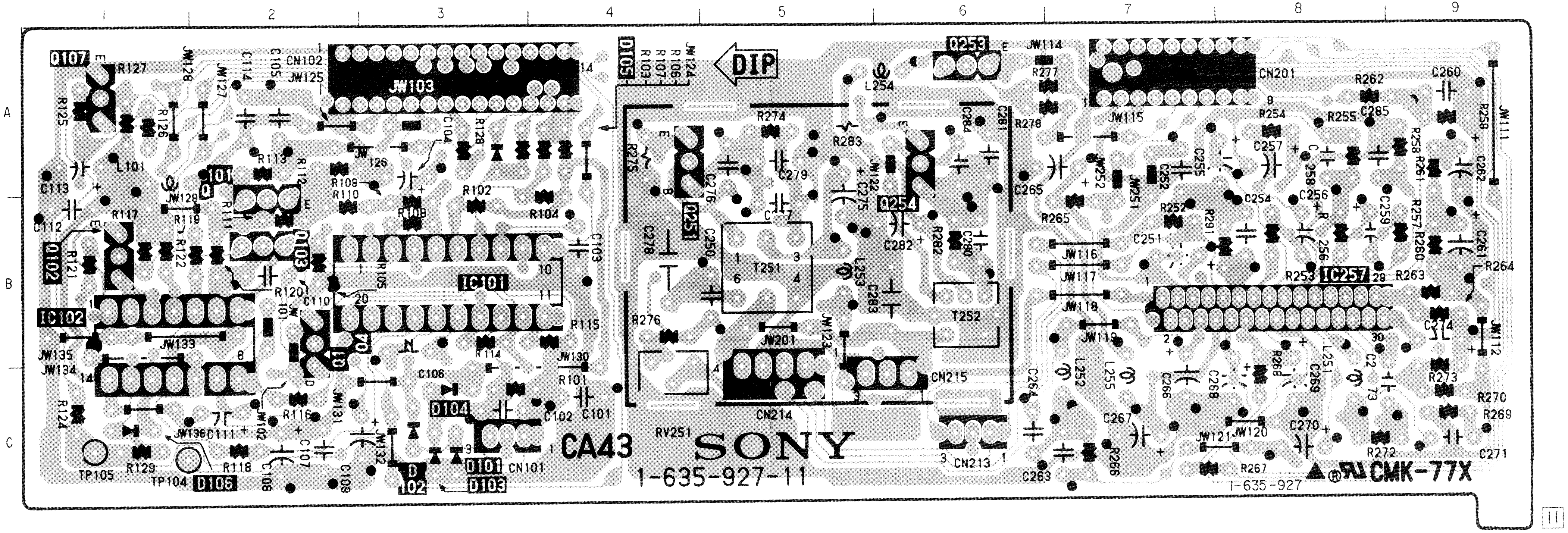
MJ-41 BOARD


CNJ063
MIC
CMK-77X
1-635-928
CN062

CA-43 (CTL AMP/AUDIO) PRINTED WIRING BOARD

– Ref. No. CA-43 Board: 7,000 series –

CA-43 BOARD

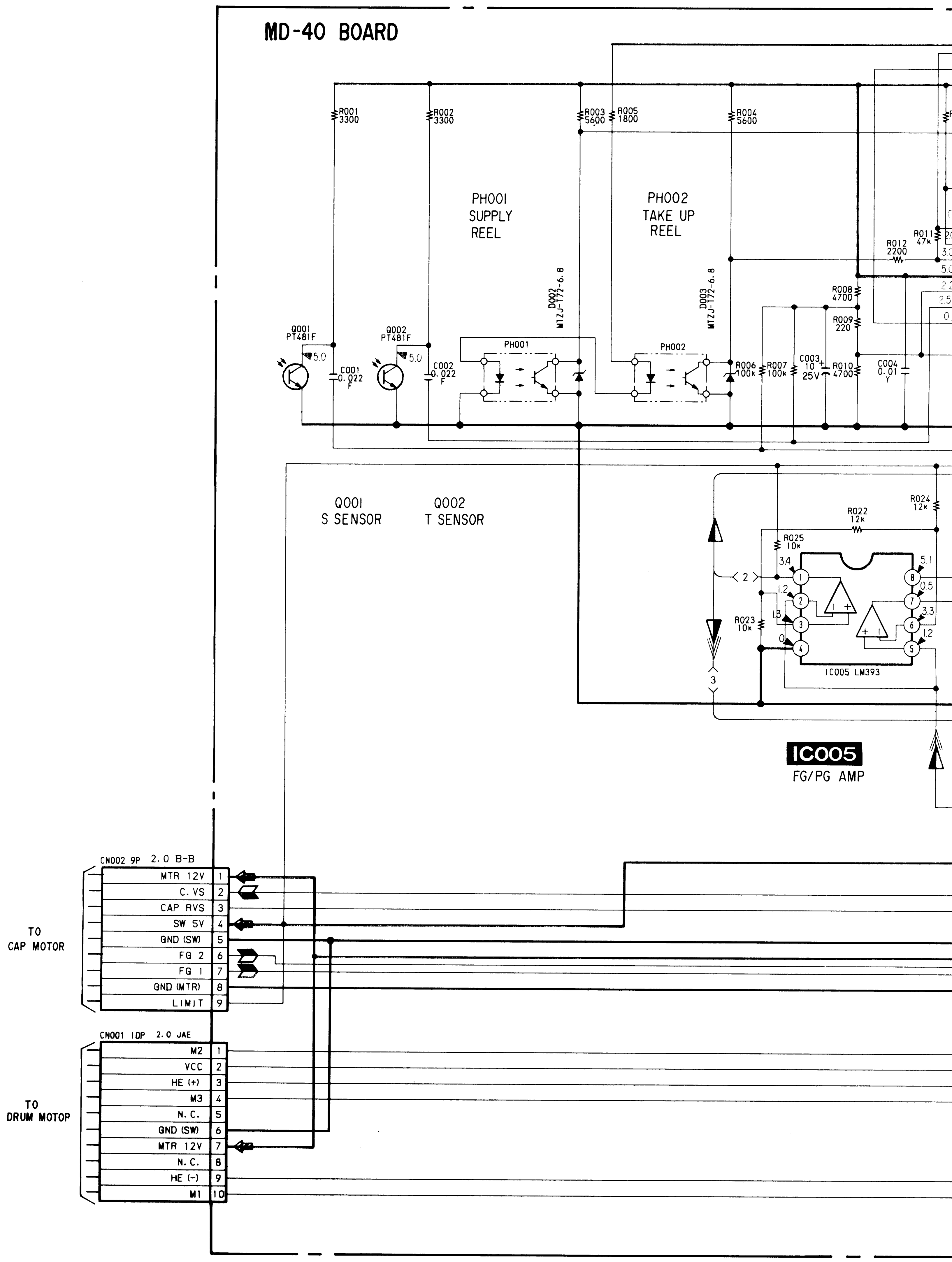

1
2
3
4
5
6
7
8
9
A
B
C
DIP
CA43
SONY
1-635-927-11
CMK-77X
1-635-927

CA-43 BOARD

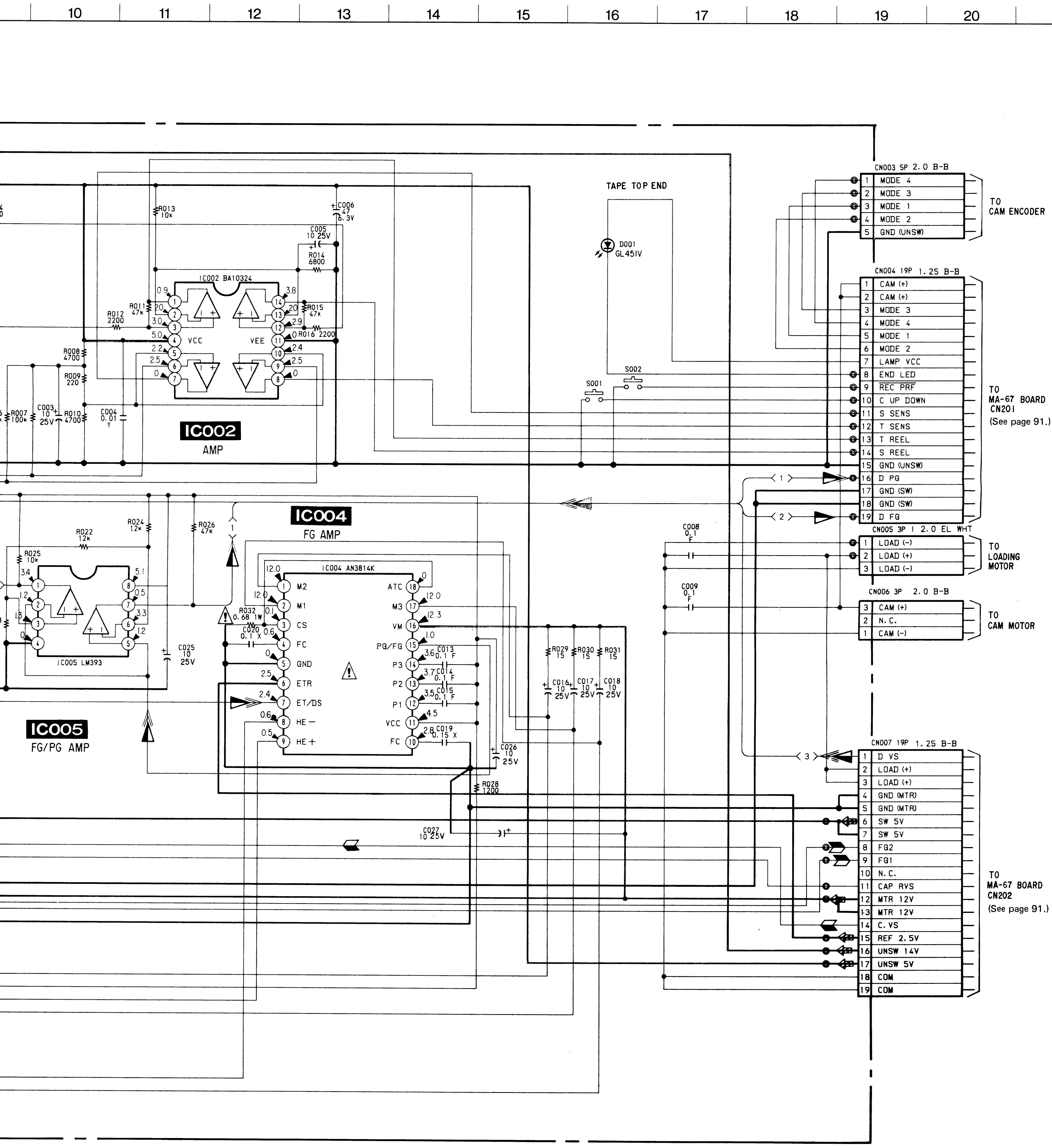
D101	B-2
D102	B-2
D103	B-2
D104	B-3
D105	A-3
D106	B-1
IC101	B-2
IC102	B-1
IC257	B-6
Q101	A-2
Q102	B-1
Q103	B-2
Q104	B-2
Q107	A-1
Q251	A-4

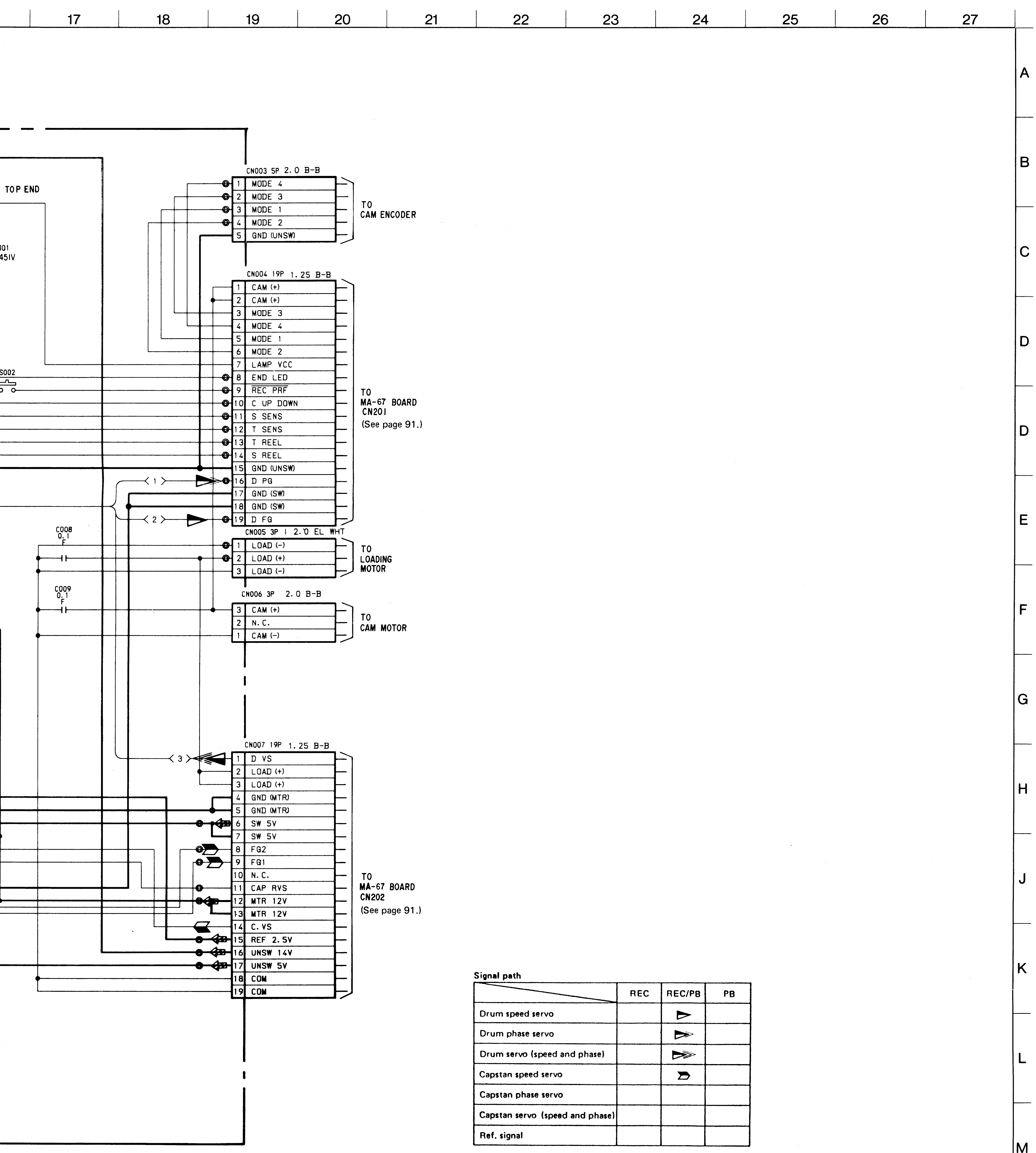
MD-40 (MECHANISM DRIVE) SCHEMATIC DIAGRAM

–Ref. No. MD-40 Board: 4,000 series–


MD-40 BOARD
R001 3300
R002 3300
R003 5600
R005 1800
R004 5600
PH001 SUPPLY REEL
PH002 TAKE UP REEL
D002 MTZJ-T72-6.8
D003 MTZJ-T72-6.8
Q001 PT481F
Q002 PT481F
5.0
C001 0.022 F
C002 0.022 F
PH001
PH002
R006 100k
R007 100k
C003 10 25V
R010 4700
C004 0.01 Y
R008 4700
R009 220
R012 2200
R011 47k
Q001 S SENSOR
Q002 T SENSOR
R022 12k
R024 12k
R025 10k
R023 10k
3.4
1.2
1.8
0
5.1
0.5
3.3
1.2
IC005 LM393
IC005
FG/PG AMP
CN002 9P 2.0 B-B
MTR 12V
C. VS
CAP RVS
SW 5V
GND (SW)
FG 2
FG 1
GND (MTR)
LIMIT
TO CAP MOTOR
CN001 10P 2.0 JAE
M2
VCC
HE (+)
M3
N. C.
GND (SW)
MTR 12V
N. C.
HE (-)
M1
TO DRUM MOTOP

MECHANISM DRIVE MECHANISM DRIVE


10
11
12
13
14
15
16
17
18
19
20
IC002
AMP
IC002 BA10324
VCC
VEE
R013 10k
C006 47 6.3V
C005 10 25V
R014 6800
R011 47k
R012 2200
R015 47k
R016 2200
R008 4700
R009 220
R007 100k
C003 10 25V
R010 4700
C004 0.01 Y
TAPE TOP END
D001 GL451V
S001
S002
IC004
FG AMP
IC004 AN3814K
M2
M1
CS
FC
GND
ETR
ET/DS
HE−
HE+
ATC
M3
VM
PG/FG
P3
P2
P1
VCC
FC
R032 0.68 1W
C020 0.1 X
C013 0.1 F
C014 0.1 F
C015 0.1 F
C019 0.15 X
R029 15
R030 15
R031 15
C016 10 25V
C017 10 25V
C018 10 25V
C026 10 25V
R028 1200
C027 10 25V
IC005
FG/PG AMP
IC005 LM393
R022 12k
R024 12k
R026 47k
R025 10k
C025 10 25V
C008 0.1 F
C009 0.1 F
CN003 5P 2.0 B-B
1 MODE 4
2 MODE 3
3 MODE 1
4 MODE 2
5 GND (UNSW)
TO CAM ENCODER
CN004 19P 1.25 B-B
1 CAM (+)
2 CAM (+)
3 MODE 3
4 MODE 4
5 MODE 1
6 MODE 2
7 LAMP VCC
8 END LED
9 REC PRF
10 C UP DOWN
11 S SENS
12 T SENS
13 T REEL
14 S REEL
15 GND (UNSW)
16 D PG
17 GND (SW)
18 GND (SW)
19 D FG
TO MA-67 BOARD CN201 (See page 91.)
CN005 3P 1 2.0 EL WHT
1 LOAD (−)
2 LOAD (+)
3 LOAD (−)
TO LOADING MOTOR
CN006 3P 2.0 B-B
3 CAM (+)
2 N.C.
1 CAM (−)
TO CAM MOTOR
CN007 19P 1.25 B-B
1 D VS
2 LOAD (+)
3 LOAD (+)
4 GND (MTR)
5 GND (MTR)
6 SW 5V
7 SW 5V
8 FG2
9 FG1
10 N.C.
11 CAP RVS
12 MTR 12V
13 MTR 12V
14 C.VS
15 REF 2.5V
16 UNSW 14V
17 UNSW 5V
18 COM
19 COM
TO MA-67 BOARD CN202 (See page 91.)

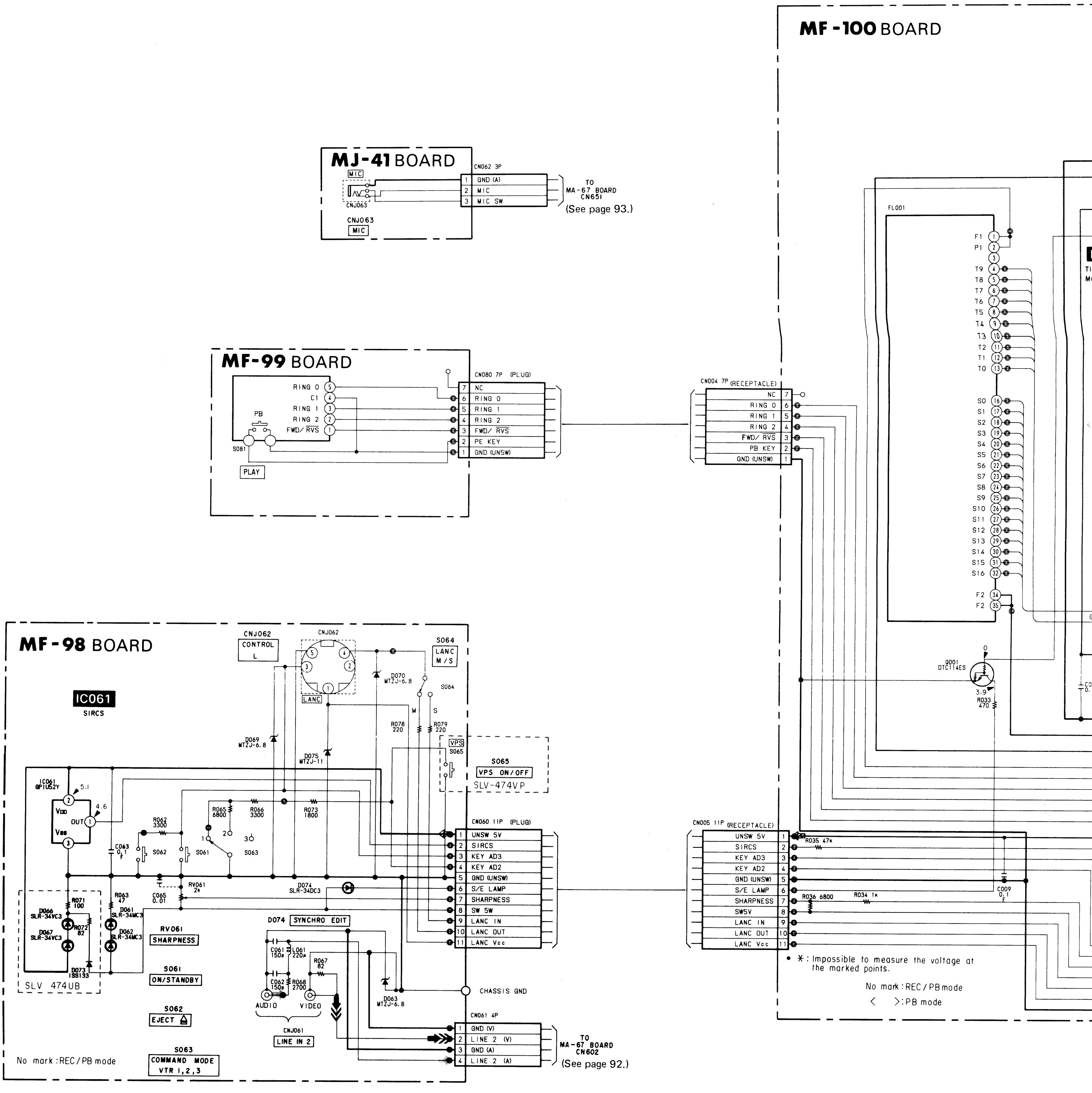

17
18
19
20
21
22
23
24
25
26
27
A
B
C
D
D
E
F
G
H
J
K
L
M
N
O
P
TOP END
001
451V
S002
CN003 5P 2.0 B-B
1 MODE 4
2 MODE 3
3 MODE 1
4 MODE 2
5 GND (UNSW)
TO
CAM ENCODER
CN004 19P 1.25 B-B
1 CAM (+)
2 CAM (+)
3 MODE 3
4 MODE 4
5 MODE 1
6 MODE 2
7 LAMP VCC
8 END LED
9 REC PRF
10 C UP DOWN
11 S SENS
12 T SENS
13 T REEL
14 S REEL
15 GND (UNSW)
16 D PG
17 GND (SW)
18 GND (SW)
19 D FG
TO
MA-67 BOARD
CN201
(See page 91.)
<1>
<2>
C008
0.1
F
C009
0.1
F
CN005 3P I 2.0 EL WHT
1 LOAD (-)
2 LOAD (+)
3 LOAD (-)
TO
LOADING
MOTOR
CN006 3P 2.0 B-B
3 CAM (+)
2 N.C.
1 CAM (-)
TO
CAM MOTOR
CN007 19P 1.25 B-B
<3>
1 D VS
2 LOAD (+)
3 LOAD (+)
4 GND (MTR)
5 GND (MTR)
6 SW 5V
7 SW 5V
8 FG2
9 FG1
10 N.C.
11 CAP RVS
12 MTR 12V
13 MTR 12V
14 C.VS
15 REF 2.5V
16 UNSW 14V
17 UNSW 5V
18 COM
19 COM
TO
MA-67 BOARD
CN202
(See page 91.)

Signal path

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo		⊳	
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			

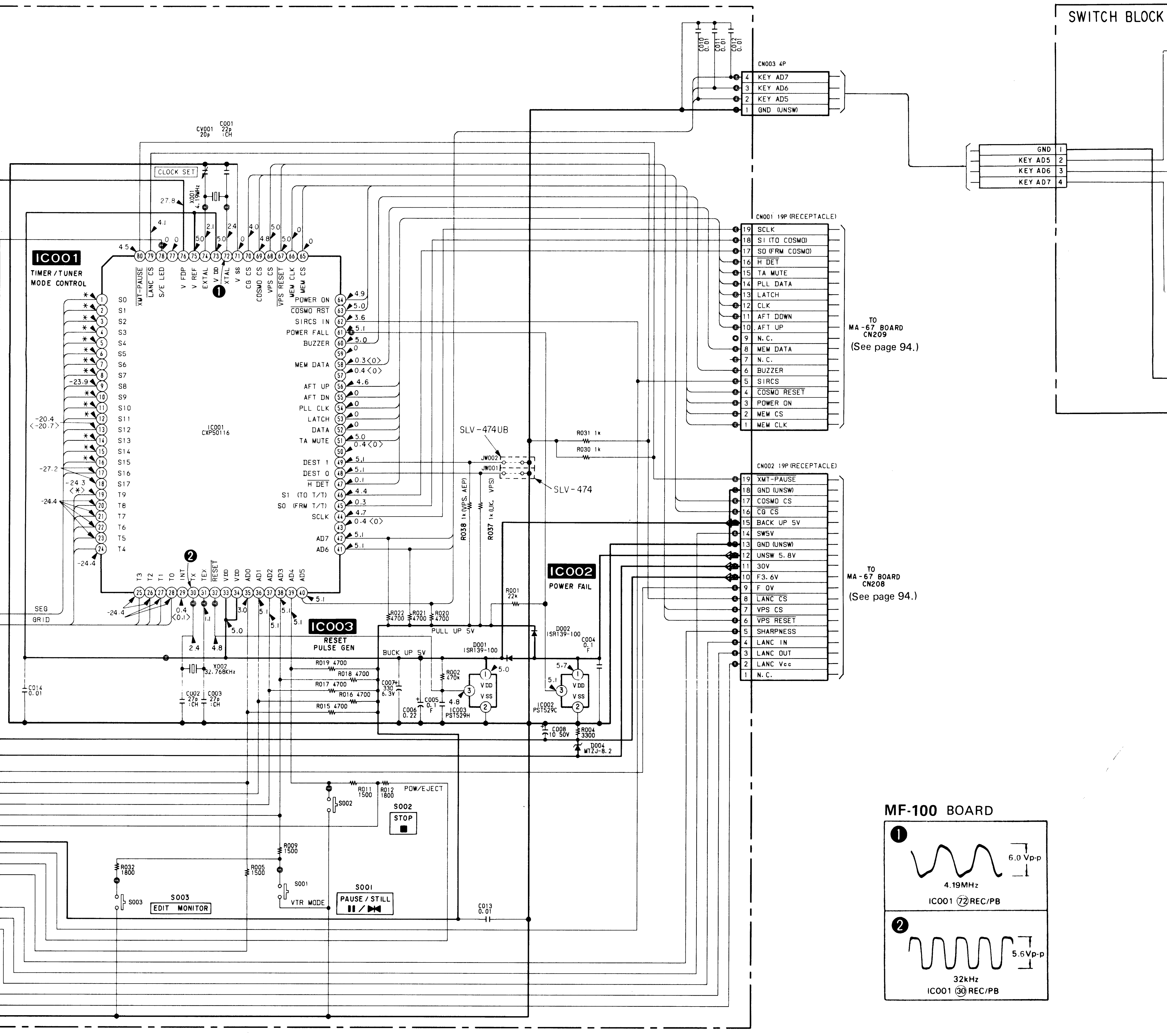
MF-98 (FUNCTION, LINE IN 2), MF-99 (SHUTTLE SEARCH DIAL), MF-100 (MODE CONTROL, INDICATOR), MJ-41 (MIC JACK) SCHEMATIC DIAGRAMS

–Ref. No. MF-98 Board: 8,300 series, MF-99 Board: 8,500 series, MF-100 Board: 8,000 series, MJ-41 Board: 8,700 series–


MJ-41 BOARD
MIC
CNJ063
CN062 3P
1 GND (A)
2 MIC
3 MIC SW
TO MA-67 BOARD CN651
(See page 93.)
MF-99 BOARD
RING 0
C1
RING 1
RING 2
FWD/ RVS
PB
S081
PLAY
CN080 7P (PLUG)
7 NC
6 RING 0
5 RING 1
4 RING 2
3 FWD/ RVS
2 PE KEY
1 GND (UNSW)
CN004 7P (RECEPTACLE)
NC 7
RING 0 6
RING 1 5
RING 2 4
FWD/ RVS 3
PB KEY 2
GND (UNSW) 1
MF-100 BOARD
FL001
F1
P1
T9
T8
T7
T6
T5
T4
T3
T2
T1
T0
S0
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
F2
F2
Q001 DTC114ES
3.9
R033 470
MF-98 BOARD
IC061
SIRCS
IC061 GP1U52Y
5.1
4.6
VDD
OUT
VSS
C043 0.1
R062 3300
S062
S061
R063 47
C065 0.01
RV061 2k
R065 6800
R066 3300
R073 1800
S063
D066 SLR-34VC3
D067 SLR-34VC3
R071 100
R072 82
D061 SLR-34MC3
D062 SLR-34MC3
D073 1SS133
SLV 474UB
RV061 SHARPNESS
S061 ON/STANDBY
S062 EJECT ⏏
S063 COMMAND MODE VTR 1,2,3
No mark : REC/PB mode
CNJ062 CONTROL L
CNJ062
LANC
D069 MTZJ-6.8
D075 MTZJ-11
D070 MTZJ-6.8
R078 220
R079 220
S064 LANC M/S
S064
M S
VPS S065
S065 VPS ON/OFF
SLV-474VP
D074 SLR-34DC3
D074 SYNCHRO EDIT
C061 150μ
L061 220μ
C062 150μ
R068 2700
R067 82
D063 MTZJ-6.8
AUDIO
VIDEO
CNJ061 LINE IN 2
CHASSIS GND
CN060 11P (PLUG)
1 UNSW 5V
2 SIRCS
3 KEY AD3
4 KEY AD2
5 GND (UNSW)
6 S/E LAMP
7 SHARPNESS
8 SW SW
9 LANC IN
10 LANC OUT
11 LANC Vcc
CN061 4P
1 GND (V)
2 LINE 2 (V)
3 GND (A)
4 LINE 2 (A)
TO MA-67 BOARD CN602
(See page 92.)
CN005 11P (RECEPTACLE)
UNSW 5V 1
SIRCS 2
KEY AD3 3
KEY AD2 4
GND (UNSW) 5
S/E LAMP 6
SHARPNESS 7
SWSV 8
LANC IN 9
LANC OUT 10
LANC Vcc 11
R035 47k
R036 6800
R034 1k
C009 0.1
• ✱: Impossible to measure the voltage at the marked points.
No mark : REC/PB mode
< >: PB mode

• ✱ : Impossible to measure the voltage a
points.

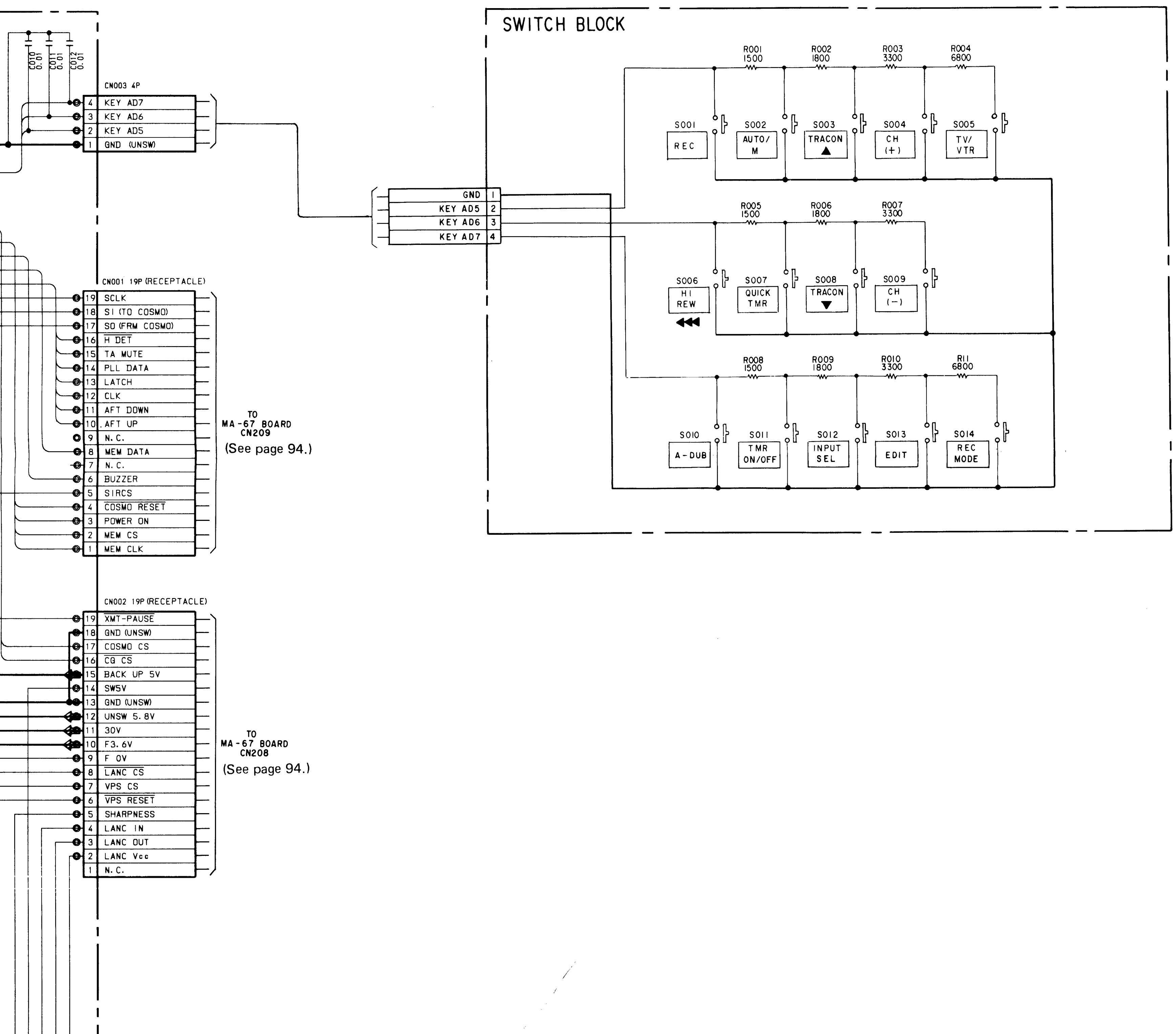
	VIDEO SIGNAL	AU
	Y/CHROMA	
REC	➡》	■


SWITCH BLOCK
CN003 4P
4 KEY AD7
3 KEY AD6
2 KEY AD5
1 GND (UNSW)
GND 1
KEY AD5 2
KEY AD6 3
KEY AD7 4
C010 0.01
C011 0.01
C012 0.01
CV001 20p
C001 22p :CH
CLOCK SET
X001 4.19MHz
IC001
TIMER / TUNER MODE CONTROL
IC001 CXP50116
XMT-PAUSE
LANC CS
S/E LED
V FDP
V REF
EXTAL
V DD
XTAL
V SS
CG CS
COSMO CS
VPS CS
VPS RESET
MEM CLK
MEM CS
S0 S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17
T9 T8 T7 T6 T5 T4 T3 T2 T1 T0
INT
TX
TEX
RESET
VDD
AD0 AD1 AD2 AD3 AD4 AD5
POWER ON
COSMO RST
SIRCS IN
POWER FALL
BUZZER
MEM DATA
AFT UP
AFT DN
PLL CLK
LATCH
DATA
TA MUTE
DEST 1
DEST 0
H DET
S1 (TO T/T)
S0 (FRM T/T)
SCLK
AD7
AD6
SEG
GRID
-23.9
-20.4 <-20.7>
-27.2
-24.3 <*>
-24.4
27.8
4.1
4.5
2.1
2.4
4.0
4.8
5.0
4.9
3.6
5.1
0.3 <0>
0.4 <0>
4.6
4.4
0.3
4.7
0.1
0.4 <0.1>
1.1
3.0
SLV-474UB
SLV-474
JW002
JW001
R031 1k
R030 1k
R038 1k (VPS, AEP)
R037 1k (UK, VPS)
CN001 19P (RECEPTACLE)
19 SCLK
18 SI (TO COSMO)
17 SO (FRM COSMO)
16 H DET
15 TA MUTE
14 PLL DATA
13 LATCH
12 CLK
11 AFT DOWN
10 AFT UP
9 N.C.
8 MEM DATA
7 N.C.
6 BUZZER
5 SIRCS
4 COSMO RESET
3 POWER ON
2 MEM CS
1 MEM CLK
TO MA-67 BOARD CN209
(See page 94.)
CN002 19P (RECEPTACLE)
19 XMT-PAUSE
18 GND (UNSW)
17 COSMO CS
16 CG CS
15 BACK UP 5V
14 SWSV
13 GND (UNSW)
12 UNSW 5.8V
11 30V
10 F3.6V
9 F 0V
8 LANC CS
7 VPS CS
6 VPS RESET
5 SHARPNESS
4 LANC IN
3 LANC OUT
2 LANC Vcc
1 N.C.
TO MA-67 BOARD CN208
(See page 94.)
IC002
POWER FAIL
IC002 PST529C
IC003
RESET PULSE GEN
IC003 PST529H
R001 22k
R002 470k
D001 1SR139-100
D002 1SR139-100
D004 MTZJ-8.2
C004 0.1 F
C008 10 50V
R004 3300
R022 4700
R021 4700
R020 4700
PULL UP 5V
BUCK UP 5V
VDD
VSS
C007 330 6.3V
C005 0.1 F
C006 0.22
X002 32.768KHz
C002 27p :CH
C003 27p :CH
C014 0.01
R019 4700
R018 4700
R017 4700
R016 4700
R015 4700
R011 1500
R012 1800
POW/EJECT
S002
S002 STOP
R009 1500
R032 1800
R005 1500
S001
S001 PAUSE / STILL
VTR MODE
S003
S003 EDIT MONITOR
C013 0.01
MF-100 BOARD
6.0 Vp-p
4.19MHz
IC001 ⑦② REC/PB
5.6Vp-p
32kHz
IC001 ③⓪ REC/PB

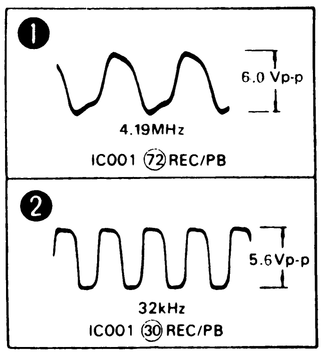
oltage at the marked

AUDIO
➡

MODE CONTROL F


19
20
21
22
23
24
25
26
27
A
B
C
D
D
E
F
G
H
J
K
L
M
N
O
P
C010 0.01
C011 0.01
C012 0.01
CN003 4P
4 KEY AD7
3 KEY AD6
2 KEY AD5
1 GND (UNSW)
GND 1
KEY AD5 2
KEY AD6 3
KEY AD7 4
SWITCH BLOCK
R001 1500
R002 1800
R003 3300
R004 6800
S001 REC
S002 AUTO/M
S003 TRACON ▲
S004 CH (+)
S005 TV/VTR
R005 1500
R006 1800
R007 3300
S006 HI REW ◀◀◀
S007 QUICK TMR
S008 TRACON ▼
S009 CH (−)
R008 1500
R009 1800
R010 3300
R11 6800
S010 A-DUB
S011 TMR ON/OFF
S012 INPUT SEL
S013 EDIT
S014 REC MODE
CN001 19P (RECEPTACLE)
19 SCLK
18 SI (TO COSMO)
17 SO (FRM COSMO)
16 H DET
15 TA MUTE
14 PLL DATA
13 LATCH
12 CLK
11 AFT DOWN
10 AFT UP
9 N.C.
8 MEM DATA
7 N.C.
6 BUZZER
5 SIRCS
4 COSMO RESET
3 POWER ON
2 MEM CS
1 MEM CLK
TO MA-67 BOARD CN209
(See page 94.)
CN002 19P (RECEPTACLE)
19 XMT-PAUSE
18 GND (UNSW)
17 COSMO CS
16 CQ CS
15 BACK UP 5V
14 SW5V
13 GND (UNSW)
12 UNSW 5.8V
11 30V
10 F3.6V
9 F 0V
8 LANC CS
7 VPS CS
6 VPS RESET
5 SHARPNESS
4 LANC IN
3 LANC OUT
2 LANC Vcc
1 N.C.
TO MA-67 BOARD CN208
(See page 94.)

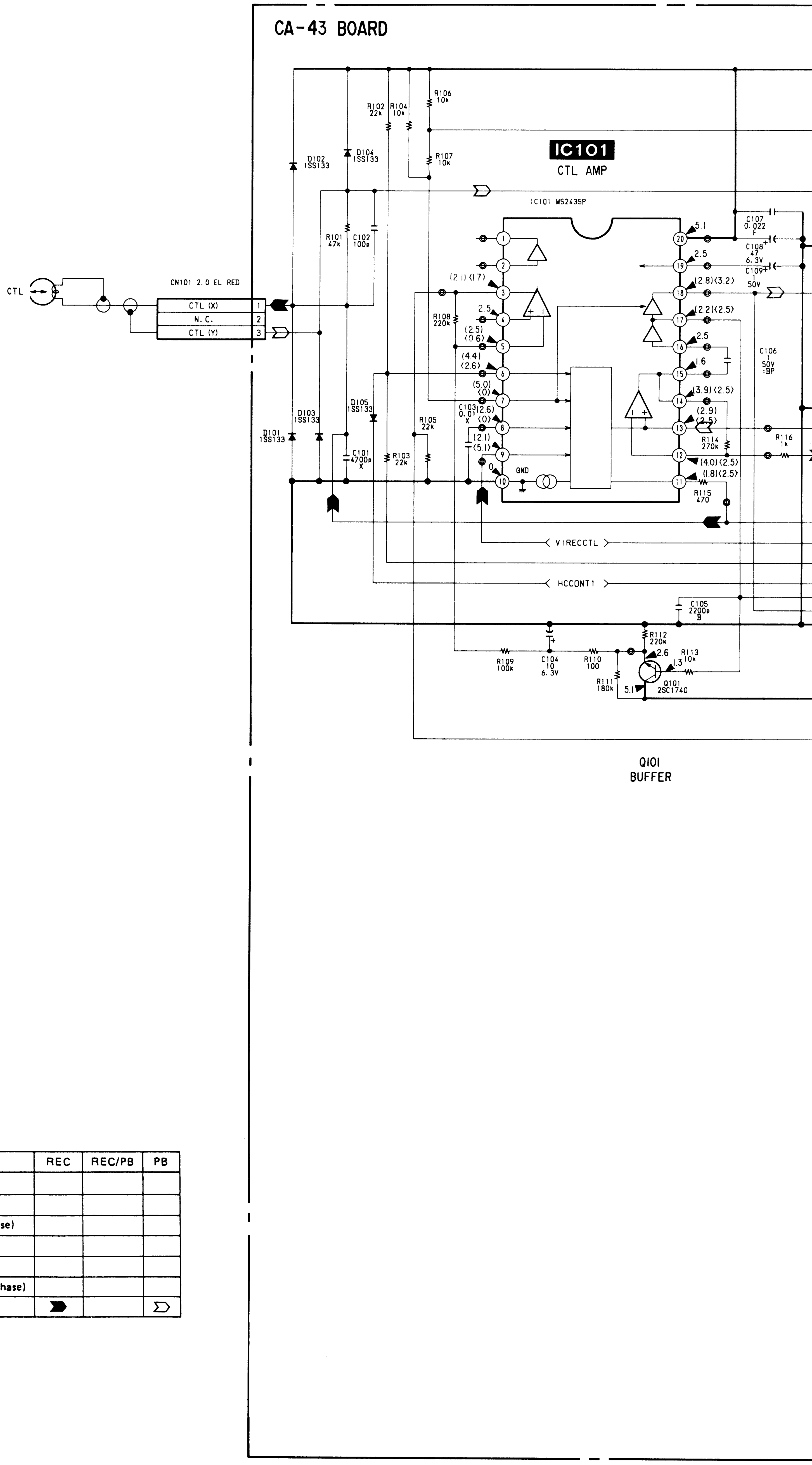
MF-100 BOARD



MODE CONTROL FUNCTION

CA-43 (CTL AMP/AUDIO) SCHEMATIC DIAGRAMS

– Ref. No. CA-43 Board: 7,000 series –

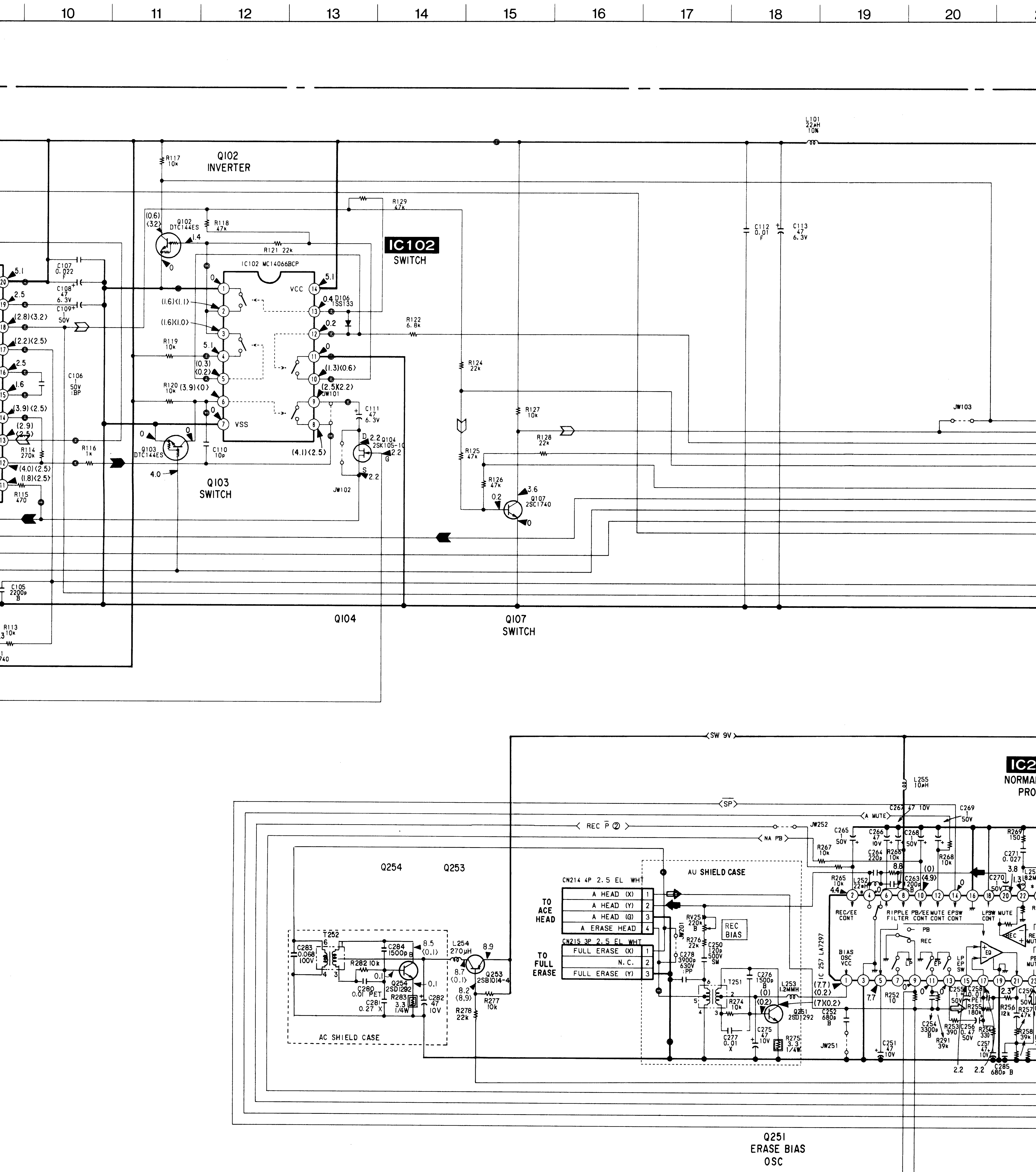


CA-43 BOARD
IC101
CTL AMP
IC101 M52435P
CTL
CN101 2.0 EL RED
CTL (X)
N. C.
CTL (Y)
1
2
3
R102 22k
R104 10k
R106 10k
R107 10k
D102 1SS133
D104 1SS133
R101 47k
C102 100p
R108 220k
D103 1SS133
D101 1SS133
D105 1SS133
C101 4700p X
R103 22k
R105 22k
C103 0.01 X
C107 0.022 F
C108 47 6.3V
C109 1 50V
C106 1 50V :BP
R114 270k
R116 1k
R115 470
GND
VIRECCTL
HCCONT1
C105 2200p B
R112 220k
R113 10k
R109 100k
C104 10 6.3V
R110 100
R111 180k
Q101 2SC1740
5.1
2.5
(2.8)(3.2)
(2.2)(2.5)
1.6
(3.9)(2.5)
(2.9)
(2.5)
(4.0)(2.5)
(1.8)(2.5)
(2.1)(1.7)
(2.5)
(0.6)
(4.4)
(2.6)
(5.0)
(0)
(2.6)
(0)
(2.1)
(5.1)
0
2.6
1.3
Q101
BUFFER

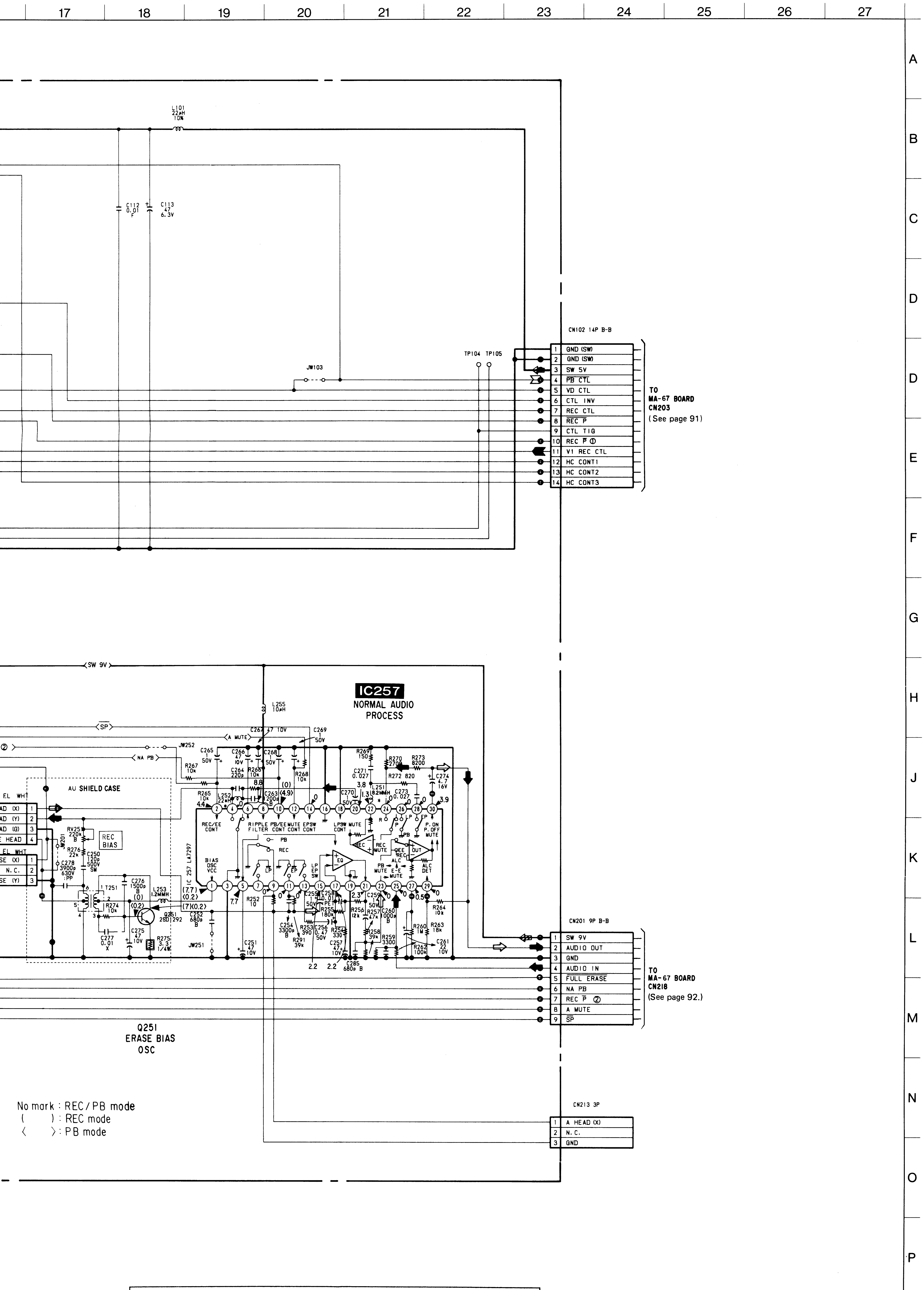
- Signal path

	AUDIO Signal
REC	➡
PB	⇨

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➡		⇨


10
11
12
13
14
15
16
17
18
19
20
Q102
INVERTER
IC102
SWITCH
IC102 MC14066BCP
Q102 DTC144ES
Q103 DTC144ES
Q103
SWITCH
Q104 2SK105-1
Q104
Q107 2SC1740
Q107
SWITCH
D106 1SS133
JW101
JW102
JW103
L101 22μH 10%
R117 10k
R118 47k
R121 22k
R129 47k
R122 6.8k
R124 22k
R125 47k
R126 47k
R127 10k
R128 22k
R119 10k
R120 10k
R116 1k
R114 270k
R115 470
R113 10k
C107 0.022 F
C108 47 6.3V
C109 1 50V
C106 1 50V BP
C105 2200p B
C110 10p
C111 47 6.3V
C112 0.01 F
C113 47 6.3V
VCC
VSS
SW 9V
SP
REC P̄ ②
NA PB
A MUTE
JW252
JW251
Q254
Q253
Q254 2SD1292
Q253 2SB1014-4
Q251 2SD1292
T252
T251
L254 270μH
L253 1.2MMH
L255 10μH
L252 22μH
C283 0.068 100V
C284 1500p B
C280 0.01 PET
C281 0.27 X
C282 47 10V
R282 10k
R283 3.3 1/4W
R277 10k
R278 22k
AC SHIELD CASE
AU SHIELD CASE
CN214 4P 2.5 EL WHT
A HEAD (X)
A HEAD (Y)
A HEAD (G)
A ERASE HEAD
TO ACE HEAD
CN215 3P 2.5 EL WHT
FULL ERASE (X)
N.C.
FULL ERASE (Y)
TO FULL ERASE
RV251 220k B
R276 22k
REC BIAS
C250 120p 500V SM
C278 3900p 630V PP
C276 1500p B
C277 0.01 X
C275 47 10V
R274 10k
R275 3.3 1/4W
C252 680p B
C251 47 10V
IC 257 LA7297
IC2
NORMAL
PRO
REC/EE CONT
RIPPLE FILTER
PB/EE CONT
MUTE CONT
EPSW CONT
LPSW CONT
MUTE
BIAS OSC VCC
PB
REC
EQ
LP
EP
LP EP SW
R265 10k
R267 10k
R268 10k
R269 150
R252 10
R253 390
R255 180k
R256 12k
R257 47k
R258 39k
R291 39k
C265 1 50V
C266 47 10V
C267 47 10V
C268 1 50V
C269 1 50V
C264 220p
C263 200p
C270 50V
C271 0.027
C254 3300p B
C256 0.47 50V
C257 47 10V
C285 680p B
Q251
ERASE BIAS
OSC

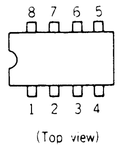
No mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode


17
18
19
20
21
22
23
24
25
26
27
A
B
C
D
D
E
F
G
H
J
K
L
M
N
O
P
L101 22μH 10%
C112 0.01 F
C113 47 6.3V
CN102 14P B-B
1 GND (SW)
2 GND (SW)
3 SW 5V
4 PB CTL
5 VD CTL
6 CTL INV
7 REC CTL
8 REC P
9 CTL TIG
10 REC P ①
11 V1 REC CTL
12 HC CONT1
13 HC CONT2
14 HC CONT3
TO MA-67 BOARD CN203 (See page 91)
TP104 TP105
JW103
SW 9V
SP
A MUTE
NA PB
JW252
IC257
NORMAL AUDIO PROCESS
L255 10μH
AU SHIELD CASE
REC BIAS
IC 257 LA7297
REC/EE CONT
RIPPLE FILTER
PB/EE CONT
MUTE CONT
EPSW CONT
LPSW CONT
MUTE
BIAS OSC VCC
EQ
REC MUTE
PB MUTE
ALC
E-E MUTE
OUT
ALC DET
P.ON P.OFF MUTE
T251
L253 1.2MMH
Q251 2SD1292
JW251
CN201 9P B-B
1 SW 9V
2 AUDIO OUT
3 GND
4 AUDIO IN
5 FULL ERASE
6 NA PB
7 REC P ②
8 A MUTE
9 SP
TO MA-67 BOARD CN218 (See page 92.)
Q251
ERASE BIAS
OSC
CN213 3P
1 A HEAD (X)
2 N.C.
3 GND

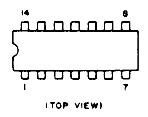
No mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode

4-3. SEMICONDUCTOR LEAD LAYOUTS

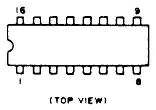
BA4560
CXL5003P
LM393N
MSM6989RS
ST93C46AB1


8 7 6 5
1 2 3 4
(Top view)

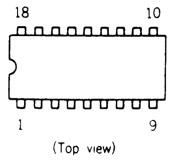
BA10324
LM324N
MC14066BCP
SDA5642


16 8
1 7
(TOP VIEW)

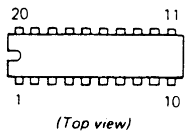
TC4052BPHB


16 9
1 8
(TOP VIEW)

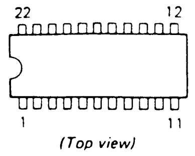
AN3814K


18 10
1 9
(Top view)

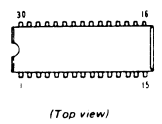
M52435P


20 11
1 10
(Top view)

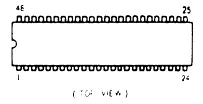
AN3592K


22 12
1 11
(Top view)

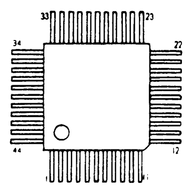
HA118016NT
HA118019NT
LC6543H-4374


30 16
1 15
(Top view)

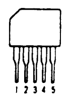
AN3231K


48 25
1 24
(TOP VIEW)

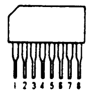
UPD75004GB-VSX182


33 23
34 22
44 12

LA7213



CX20061



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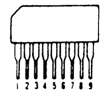
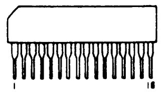
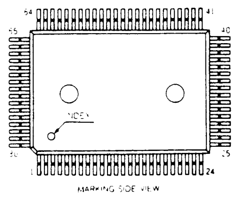


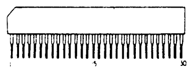
BA7007



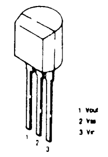
CXP50116-VSX350


64 41
65 40
80 25
1 24
(MARKING SIDE VIEW)

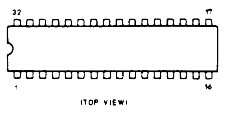
LA7297



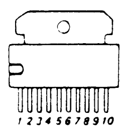
PST529C
PST529H


1 Vout
2 Vcc
3 Vr
1 2 3

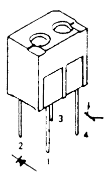
M50554-182SP


32 17
1 16
(TOP VIEW)

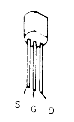
BA6238A


1 2 3 4 5 6 7 8 9 10

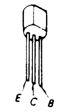
PS6002



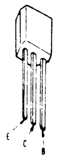
2SK105A-10



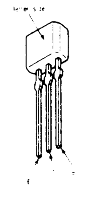
2SA922S-QR



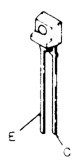
DTA114ES
DTA124ES
DTA144ES
DTC114ES
DTC144ES
2SC1740S-QR
2SD1292



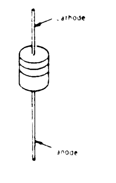
DTA143XS



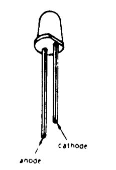
PT483F1



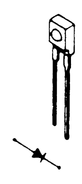
RD5.1ES-B2
RD6.8ES-B2
RD8.2ES-B2
RD13ES-B2
RD33ES-B2
1SR139-100
1SS119


anode
anode

SLR-34MC3


cathode
anode

GL451V



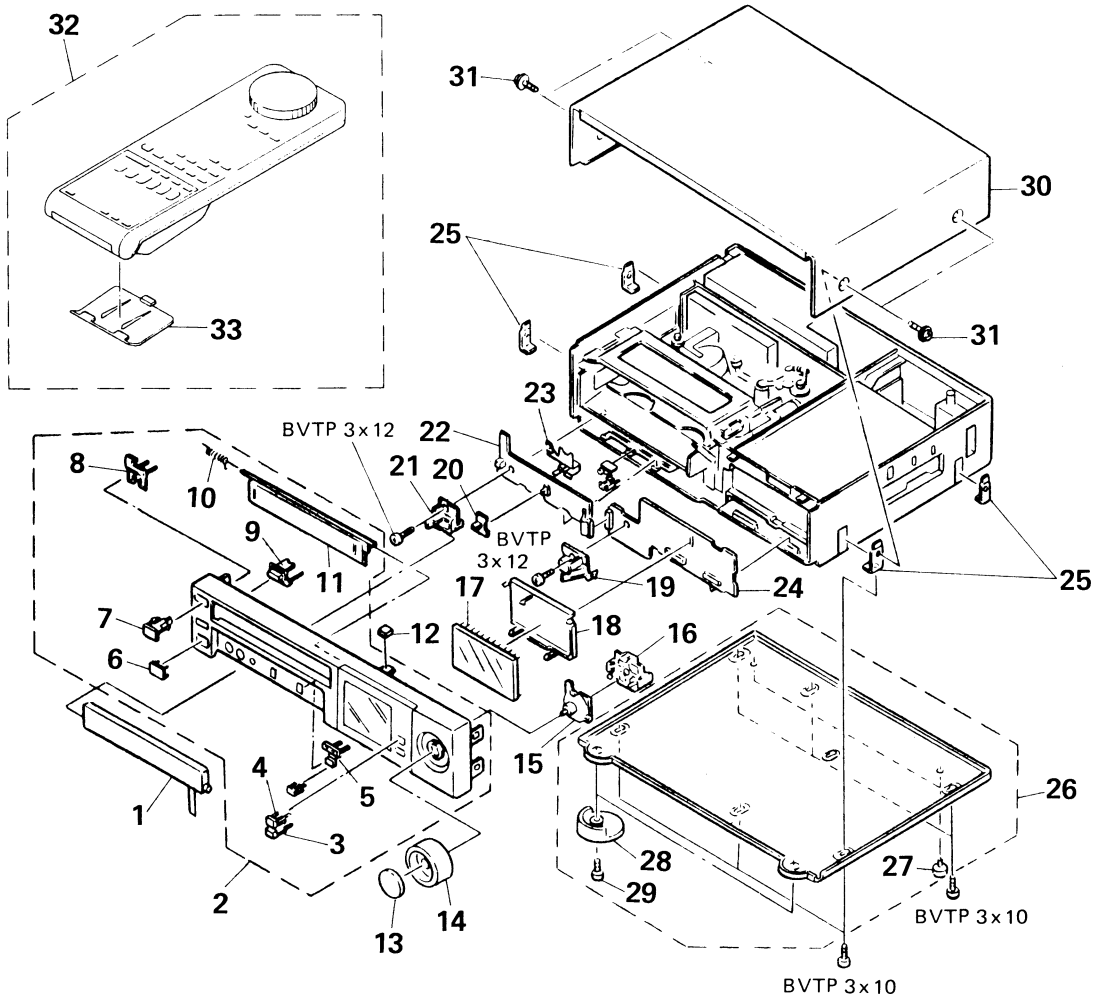
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

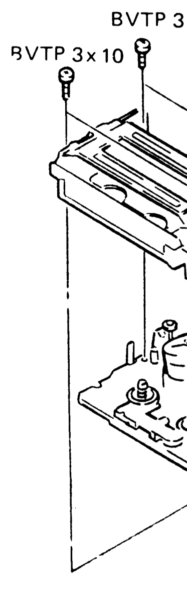
5-1. FRONT PANEL, CABINET ASSEMBLIES


32
31
30
25
33
31
23
BVTP 3x12
22
21
20
8
10
9
11
BVTP
3x12
17
19
24
25
7
12
18
16
6
15
26
4
5
1
3
28
27
2
29
13
14
BVTP 3x10
BVTP 3x10

No.	Part No.	Description	Remark
1	1-413-563-11	SWITCH BLOCK, CONTROL (SLV-474UB)	
	1-413-562-11	SWITCH BLOCK, CONTROL (SLV-474)	
	1-413-562-11	SWITCH BLOCK, CONTROL (SLV-474VP)	
2	X-3746-013-1	PANEL ASSY, FRONT (SLV-474VP)	3-11
	X-3746-011-1	PANEL ASSY, FRONT (SLV-474/474UB)	3-11
3	3-741-971-21	BUTTON, STOP (■)	
4	3-741-978-21	BUTTON, STOP (❚❚/⏯)	
5	3-746-046-01	BUTTON, VPS (SLV-373VP)	
6	3-741-981-31	WINDOW, LAY CATCHER BLOCK	
7	3-741-973-01	BUTTON, POWER (ON/STANDBY)	
8	3-741-975-01	TIP, POWER BUTTON	
9	3-741-974-01	BUTTON, EJECT (⏏ EJECT)	
10	3-741-977-01	SPRING (FL), TORSION	
11	3-746-028-01	DOOR (E), CASSETTE	
12	9-911-841-XX	CUSHION (B)	
13	3-741-951-21	BUTTON, PLAY (▷ PLAY)	
14	3-741-952-01	RING, SHUTTLE	
15	*1-635-924-11	MF-99 BOARD	
16	*3-741-965-01	HOLDER, PC BOARD	
17	1-519-580-11	INDICATOR TUBE, FLUORESCENT	

No.	Part No.	Description	Remark
18	*3-744-220-01	HOLDER, FL	
19	3-741-967-01	PLATE (RIGHT), FULCRUM, DOOR	
20	3-744-217-01	KNOB, SELECTION (COMMAND MODE)	
21	3-741-966-01	PLATE (LEFT), FULCRUM, DOOR	
22	1-635-923-11	MF-98 BOARD	
23	3-741-968-01	PLATE, GROUND, MF	
24	*A-6721-350-A	MF-100 BOARD. COMPLETE (SLV-474UB)	
	*A-6721-351-A	MF-100 BOARD. COMPLETE (SLV-474VP)	
24	*A-6721-349-A	MF-100 BOARD. COMPLETE (SLV-474)	
25	*3-741-992-01	STOPPER, UPPER CASE	
26	X-3733-346-2	PLATE ASSY, BOTTOM	27-29
27	3-670-155-11	LEG	
28	X-3733-345-1	INSULATOR ASSY	
29	3-721-343-01	SCREW, FIXED, M4X7	
30	3-746-051-01	CASE, UPPER	
31	3-710-901-11	SCREW (3X8), TAPPING	
32	1-465-557-11	REMOTE COMMANDER ASSY (RMT-V474)	33
33	3-746-029-01	COVER, BATTERY	

5-2. CHASSIS ASSE


BVTP 3
BVTP 3x10

No.	Part No.
51	*A-6727-189-A
52	X-3746-004-1
53	⚠1-413-563-11
	⚠1-413-562-11
54	3-746-011-01
55	*3-741-963-01
56	*A-6727-187-A
57	3-736-704-01
58	9-911-843-XX
59	*3-749-480-01
	*3-749-482-01
	*3-749-485-01

tified by
with mark

t number

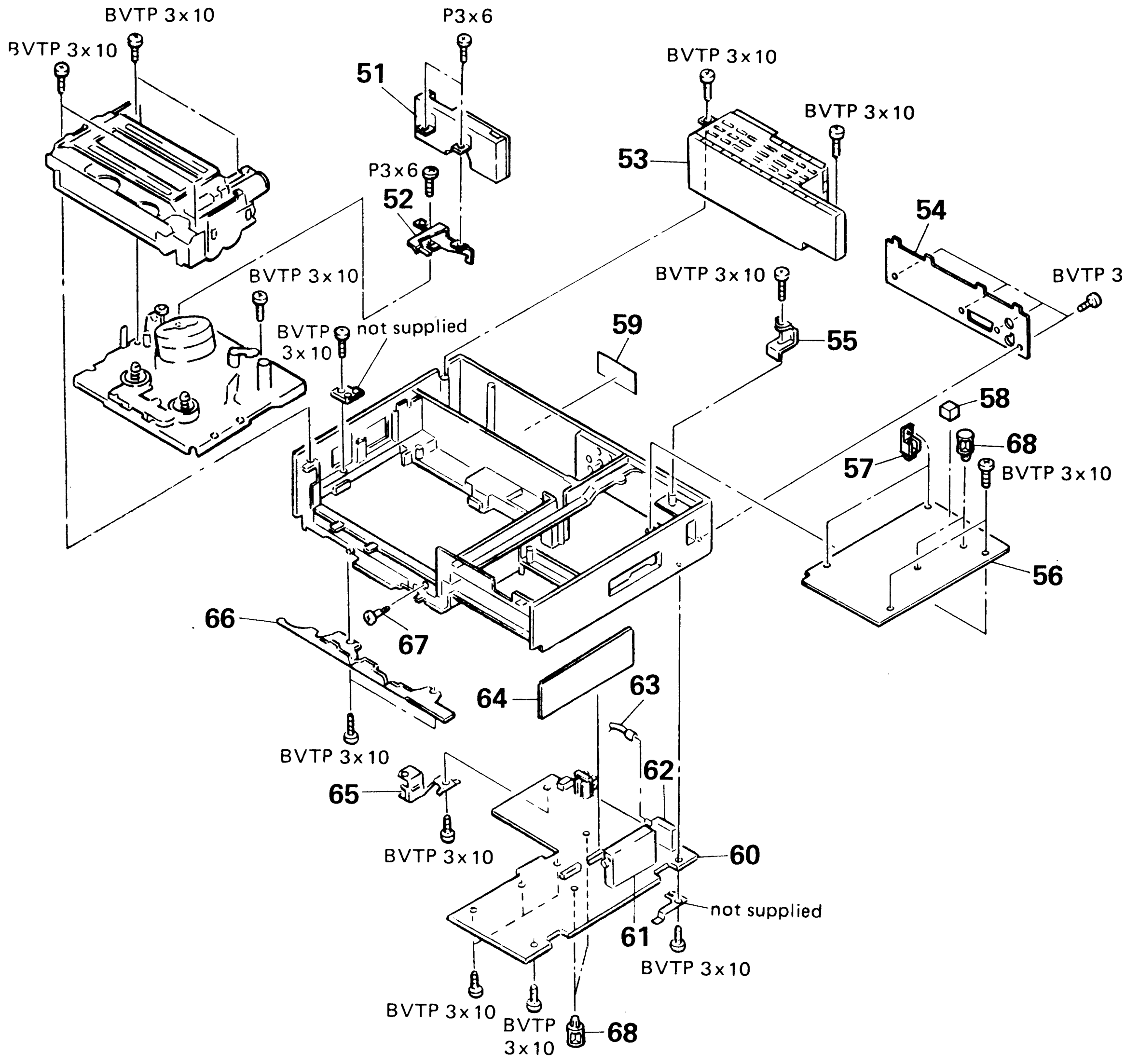
Remark

74UB)
74VP)

74) 27-29

74) 33

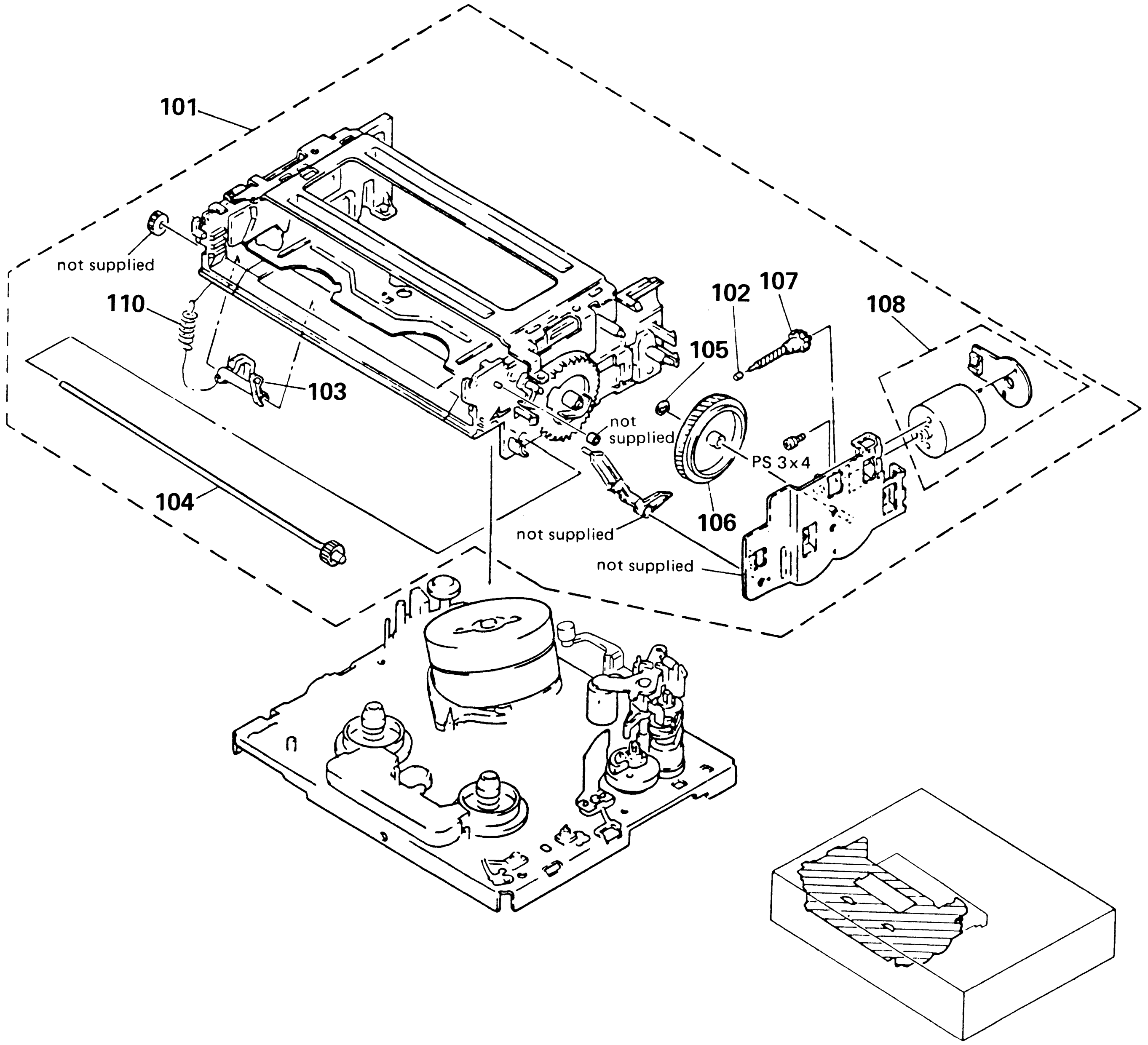
5-2. CHASSIS ASSEMBLY


BVTP 3x10
BVTP 3x10
P3x6
51
P3x6
52
BVTP 3x10
53
BVTP 3x10
54
BVTP 3x12
BVTP 3x10
BVTP 3x10
not supplied
59
BVTP 3x10
55
58
68
57
BVTP 3x10
56
66
67
64
63
BVTP 3x10
65
62
BVTP 3x10
60
not supplied
61
BVTP 3x10
BVTP 3x10
BVTP 3x10
68

No.	Part No.	Description	Remark
51	*A-6727-189-A	RP-100 BOARD, COMPLETE	
52	X-3746-004-1	GROUND ASSY, SHAFT	
53	⚠1-413-563-11	BLOCK, POWER (SLV-474UB)	
	⚠1-413-562-11	BLOCK, POWER (SLV-474/474VP)	
54	3-746-011-01	PLATE, ORNAMENTAL, JACK	
55	*3-741-963-01	BRACKET, RF	
56	*A-6727-187-A	YC-90 BOARD, COMPLETE	
57	3-736-704-01	HINGE, PC BOARD	
58	9-911-843-XX	CUSHION	
59	*3-749-480-01	LABEL, MODEL NUMBER (NO.2) (SLV-474UB)	
	*3-749-482-01	LABEL, MODEL NUMBER (NO.2) (SLV-474)	
	*3-749-485-01	LABEL, MODEL NUMBER (NO.2) (SLV-474VP)	
60	*A-6724-868-A	MA-67 BOARD, COMPLETE (SLV-474UB)	
	*A-6724-869-A	MA-67 BOARD, COMPLETE (SLV-474VP)	
	*A-6724-867-A	MA-67 BOARD, COMPLETE (SLV-474)	
61	⚠.1-465-260-11	TUNER, ET (BTP-2C401) (SLV-474/474VP)	
	⚠.1-465-262-11	TUNER, ET (SLB-474UB)	
62	⚠.1-466-328-11	MODULATOR, RF (RFU-2017) (SLV-474/474VP)	
	⚠.1-466-347-11	MODULATOR, RF (RFU-2024) (SLV-474UB)	
63	1-558-924-41	CABLE, PIN	
64	*A-6713-390-A	CA-43 BOARD, COMPLETE	
65	*3-741-962-01	PLATE, GROUND, JMP	
66	3-741-953-03	ESCUTCHEON, FRAME	
67	3-741-948-11	SCREW (3), SPECIAL (+) TAPPING	
68	3-682-057-11	SPACER (SMALL)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-3. FL CASSETTE COMPARTMENT


101
not supplied
110
103
102
107
108
105
not supplied
PS 3x4
106
104
not supplied
not supplied

No.	Part No.	Description	Remark
101	A-6751-421-A	FL BLOCK ASSY (M2)	102-110
102	3-716-144-02	RETAINER, WORM	
103	3-736-163-01	LEVER, ERASING PROTECTION	
104	X-3727-775-2	GEAR (RIGHT) ASSY, MIDWAY	
105	3-696-510-01	WASHER (3), STOPPER	
106	3-736-164-01	WHEEL (FL), WORM	
107	3-736-100-01	GEAR (FL), WORM	
108	X-3727-784-1	MOTOR ASSY (LOADING) (M904)	
110	3-739-687-01	SPRING, TENSION	

7-5-5. Hue Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IO-20 board (EURO-AV OUT)
Measurement equipment	Vectorscope
Adjustment element	RV101
Specified value	Hue of parent screen= that of child screen

[Adjustment Method]

1) With RV101, match the phases of the parent and child screens.

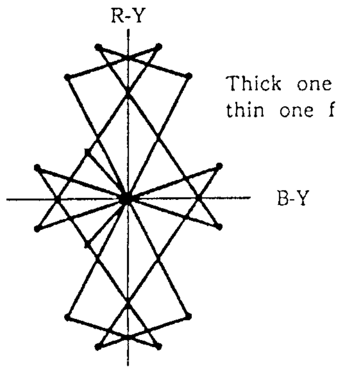


Fig. 7-24.

7-5-6. Write Clock Adjustment (DB-2 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC105 pin ①
Measurement equipment	Frequency counter
Adjustment element	CT102
Specified value	5.00±0.05MHz

[Connection]

1) Connect the IC105 pin⑥ and GND with a jumper wire.

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) of high input impedance (10MΩ or more) and low capacity (10pF or less).

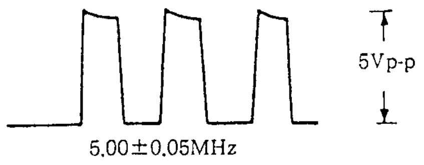


Fig. 7-25.

7-6. AUDIO SYSTEM ADJUSTMENT

- Adjust the audio system in the SP mode, unless otherwise specified.
  Use the alignment tape.

[Connection]

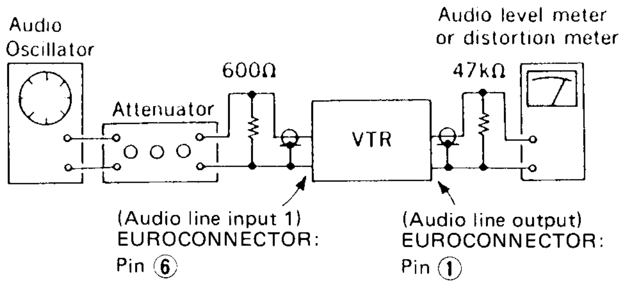

Audio Oscillator
Attenuator
600Ω
VTR
47kΩ
Audio level meter or distortion meter
(Audio line input 1) EUROCONNECTOR: Pin ⑥
(Audio line output) EUROCONNECTOR: Pin ①

Fig. 7-26.

7-6-1. Normal Audio System Adjustment

- Make adjustment in the SP mode, unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Make adjustment with the switches set to the following positions:
  INPUT SELECT ······· LINE 2

[Adjustment Sequence]

1. **ACE Head Adjustment···· See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅱ".**
2. **E-E Output Level Check**
3. **Recording Bias Adjustment**
4. **Overall Level Characteristic and Distortion Factor Check**
5. **Overall S/N Check**

1. ACE Head Adjustment
See "VHS MECHANICAL ADJUSTMENT MANUAL Ⅱ".

2. E-E Output Level Check

Mode	E-E
Signal	400Hz, −7.5dBs
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter
Specified value	− 7.5 ± 2dBs

[Confirmation Method]

1) Input a signal of 400Hz, −7.5dBs to Audio Line Input (EUROCONNECTOR: Pin ⑥).
2) Confirm that the audio output level is −7.5±2dBs.

3. Recording Bias Adjustment (CA-43 Board)

Mode	REC and PB
Signal	400Hz, − 30dBs 7kHz, − 30dBs
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter
Adjustment element	RV251
Specified value	0 ± 1dB

[Adjustment Method]

1) Supply a signal of 400Hz, −30dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output (EUROCONNECTOR: Pin①).
3) Adjust the attenuator so that the audio level meter will indicate −30dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7kHz and make recording.
6) Play back a recorded portion, and measure output levels at 400Hz and 7kHz.
7) Confirm that the 7kHz playback output level is within a range of the 400Hz playback output level 0 ± 1dB. When it is out of this range, adjust RV251 and repeat the steps 1) through 7) above.

4. Overall Level Characteristic and Distortion Factor Check

Mode	REC and PB
Signal	400Hz, − 7.5dBs
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter and distortion factor meter
Specified value	Playback level: − 7.5 ± 2dBs Distortion factor: 4% or less

[Confirmation Method]

1) Supply an audio signal of 400Hz, − 7.5dBs Audio Line Input. (EUROCONNECTOR: Pin ⑥).
2) Make recording.
3) Play back a recorded portion.
4) Confirm that a playback level is − 7.5 ± 2dBs.
5) Confirm that a distortion factor is within 4%.

5. Overall S/N Check

Mode	REC and PB
Signal	400Hz, − 7.5dBs, and no signal
Measurement point	EUROCONNECTOR: Pin ①
Measurement equipment	Audio level meter
Specified value	35dB or more

[Confirmation Method]

1) Supply a signal of 400Hz to Audio Line Input. Adjust the attenuator so that the audio line output level will be − 7.5dBs.
2) Make recording.
3) With the REC mode held, make the no-signal state. (Short an input.)
4) Play back a recorded portion, and confirm that there is a level difference of 35dB or more between 400Hz portion and no-signal portion (immediately after a 400Hz signal).

7-7. TUNER SYSTEM ADJUSTMENT

7-7-1. RF AGC Adjustment (IF701 Unit/MA-67 Board)

Signal	Broadcast TV signal
Adjustment element	VR of IF701 unit

[Adjustment Method]

1) Adjust the monitor TV to a maximum contrast.
2) Turn the VR to make snow noise visible.
3) Turn the VR in an opposite direction and set it to the point where the snow noise disappears.
4) Receive each channel and that there are no beat picture corruption snow noises due to cross modulation.

[Adjustment Method]

1) Adjust with the volume of IF701 so that the tuner AGC terminal voltage becomes to the adjustment valve.

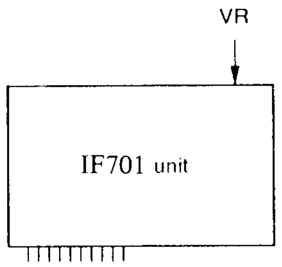


Fig. 7-27.

7-8. MODE CONTROL SYSTEM ADJUSTMENT

7-8-1. Clock Adjustment (MF-100 Board)

Mode	E-E
Measurement point	IC001 pin (61) (PWR FAIL)
Measurement equipment	Frequency counter
Adjustment element	CV001
Adjusting value	2,097,152±4Hz

Note: Connect the following two points with jumpers.
- Pin ⑥ of CN001 (BUZZER) – GND.
- Pin ③ of IC003 (RESET) – GND.

[Adjustment Method]

1) Adjust with CV001 so that the reading on the frequency counter becomes 2,097,152±4Hz.

7-9.

ɔut. Adjust the
level will be

state. (Short an

that there is a
Hz portion and
signal).

T

nal
t

trast.

set it to the

beat picture
ation.

e tuner AGC
ve.

USTMENT

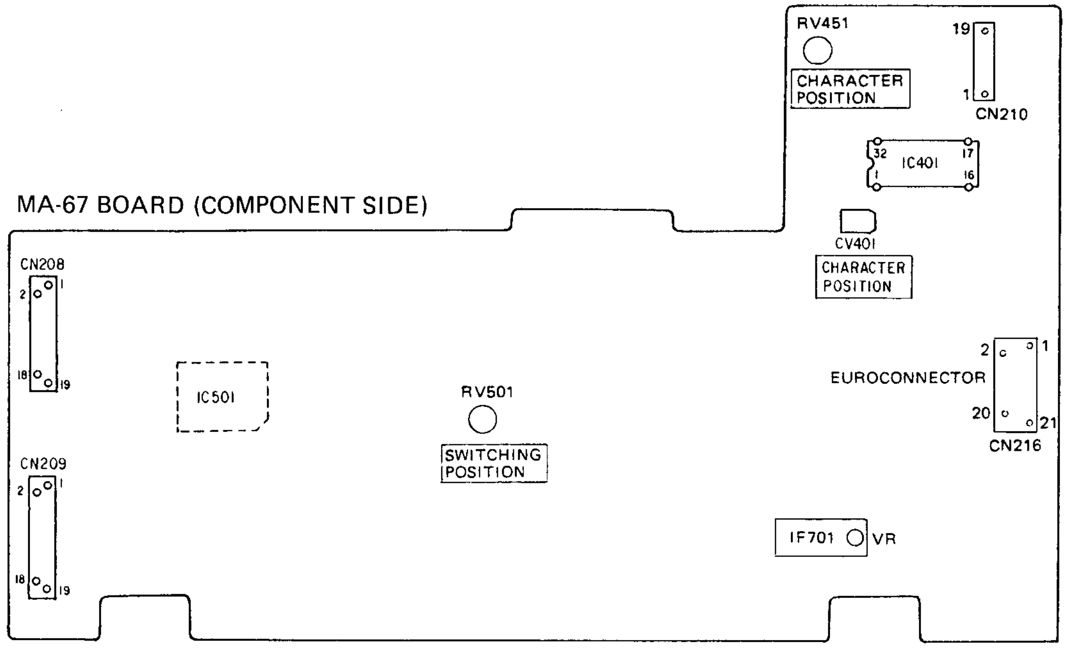
WR FAIL)

umpers.

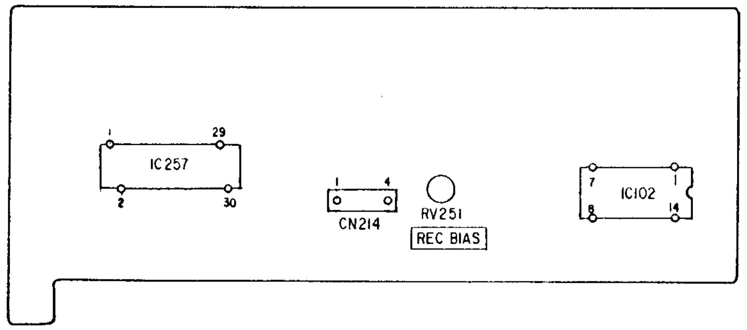
the frequency

7-9. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

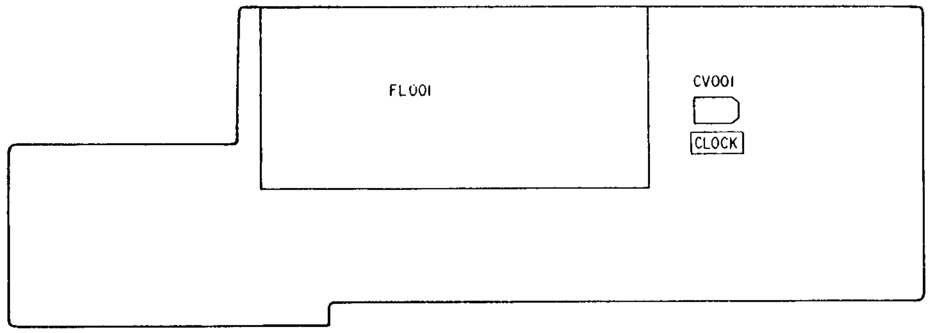
MA-67 BOARD (COMPONENT SIDE)


RV451
CHARACTER POSITION
19
1
CN210
IC401
32
1
17
16
CV401
CHARACTER POSITION
CN208
2
1
18
19
IC501
RV501
SWITCHING POSITION
EUROCONNECTOR
2
1
20
21
CN216
CN209
2
1
18
19
IF701
VR

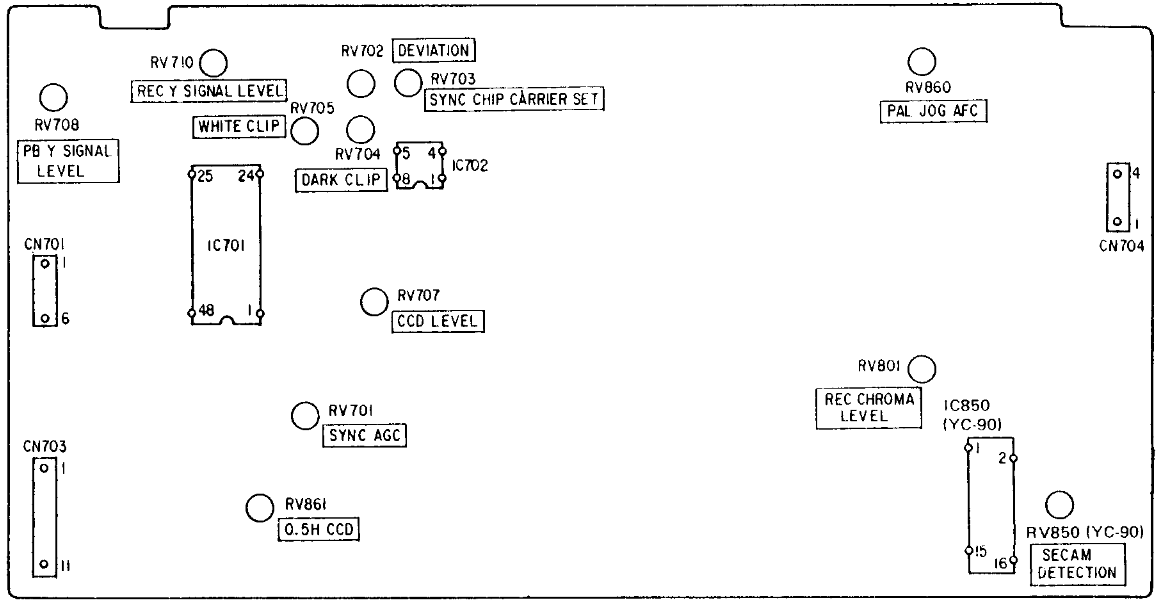
CA-43 BOARD (COMPONENT SIDE)


IC257
1
29
2
30
CN214
1
4
RV251
REC BIAS
IC102
7
1
8
14

MF-100 BOARD (COMPONENT SIDE)


FL001
CV001
CLOCK

YC-90 BOARD (COMPONENT SIDE)


RV710
REC Y SIGNAL LEVEL
RV702
DEVIATION
RV703
SYNC CHIP CARRIER SET
RV705
WHITE CLIP
RV704
DARK CLIP
IC702
5
4
8
1
RV708
PB Y SIGNAL LEVEL
IC701
25
24
48
1
RV860
PAL JOG AFC
CN704
4
1
CN701
1
6
RV707
CCD LEVEL
RV801
REC CHROMA LEVEL
IC850 (YC-90)
1
2
15
16
CN703
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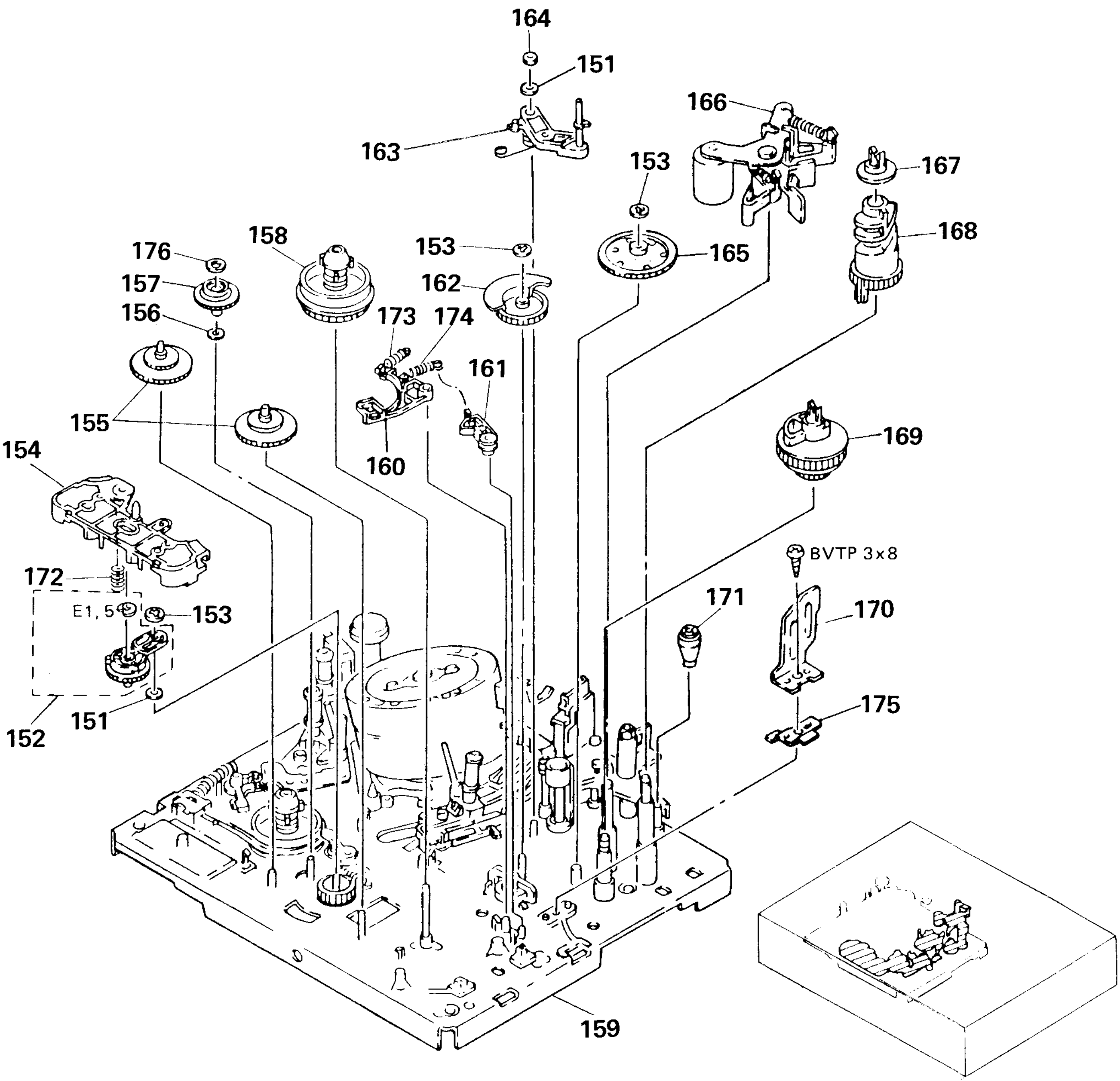
11
RV701
SYNC AGC
RV861
0.5H CCD
RV850 (YC-90)
SECAM DETECTION

5-4. MECHANISM DECK 1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BVTP 3x8
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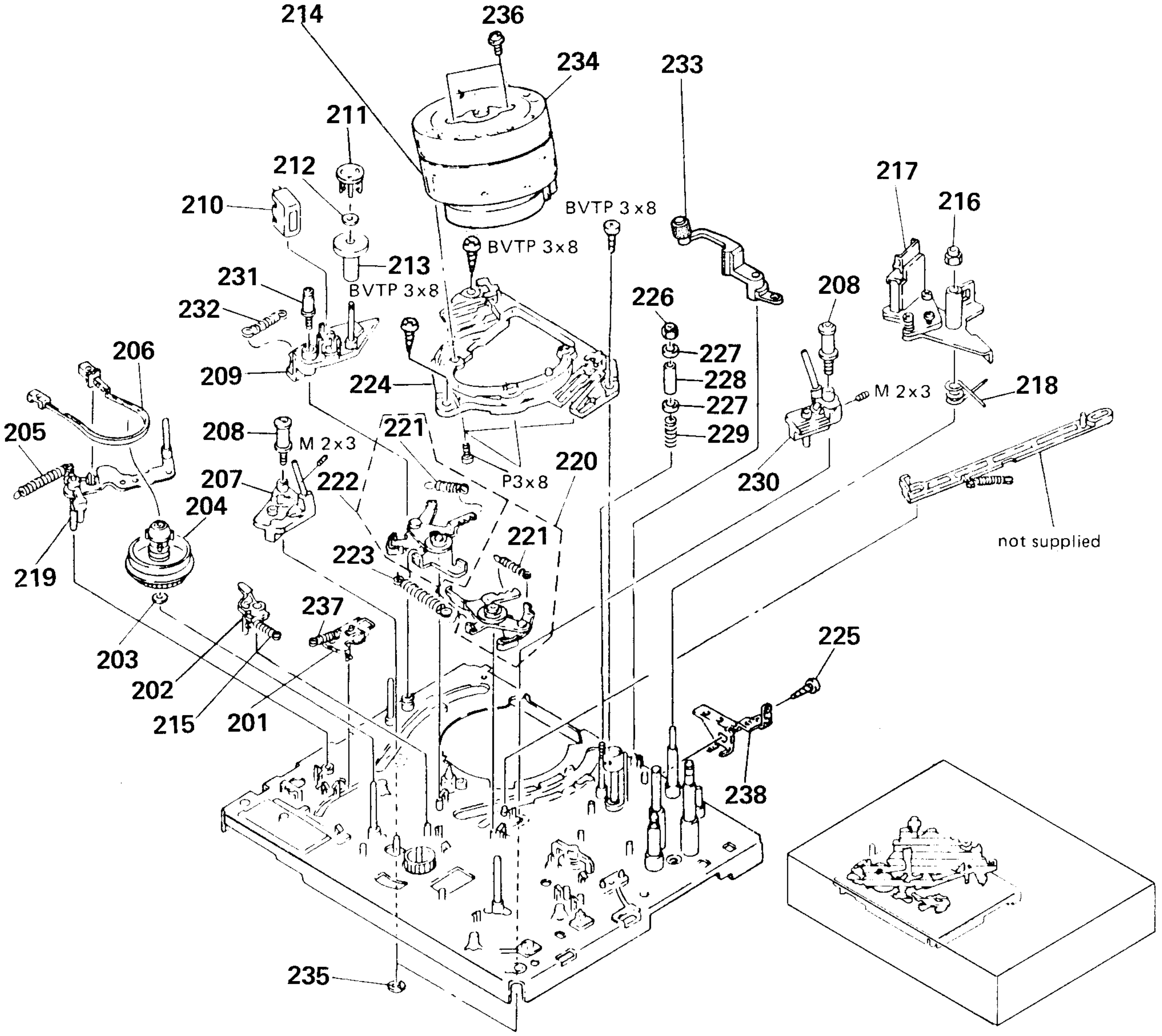
No.	Part No.	Description	Remark
151	3-701-438-11	WASHER, 2.5	
152	X-3727-776-1	ARM ASSY, PENDULUM	
153	3-669-595-00	WASHER (2), STOPPER	
154	3-736-172-02	RELEASE, LOCK, REEL	
155	X-3727-795-1	GEAR ASSY, RELAY	
156	3-736-074-01	RETAINER (SMALL), THRUST	
157	3-736-037-01	GEAR, REW	
158	X-3727-798-1	TABLE ASSY, REEL	
159	*A-6773-084-A	MD BLOCK ASSY 151-157,160-172,175,176 201-203,205-208,216,218,219,226-230 235,237,251-260,262,267-277,280-285 287-289,291,292,297	
160	X-3733-335-1	BRAKE ASSY (AT), T SOFT	
161	3-736-105-01	ARM, REV BRAKE	
162	3-736-143-01	GEAR, RVS CAM	

No.	Part No.	Description	Remark
163	X-3729-911-1	ARM ASSY, RVS	
164	3-736-740-01	NUT (M2X0.25), NYLON	
165	3-736-116-01	GEAR, COMMUNICATION	
166	X-3727-770-1	PINCH ROLLER BLOCK ASSY	
167	3-736-111-01	STOPPER	
168	3-736-136-01	CAM, ELEVATOR	
169	3-736-135-01	GEAR, PRESS CAM	
170	3-736-109-01	PLATE, OPEN, LID	
171	3-738-250-01	SCREW, AC ADJUSTMENT	
172	3-736-020-11	SPRING, COMPRESSION	
173	3-736-024-01	SPRING, TENSION	
174	3-736-025-01	SPRING (REV BRAKE), TENSION	
175	3-744-227-01	SPRING (ATOM), FL GROUND	
176	3-736-069-01	RETAINER, SPRING	

5-5. MECHANISM DECK 2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BVTP 3x8
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BVTP 3x8
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M 2x3
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M 2x3
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P3x8
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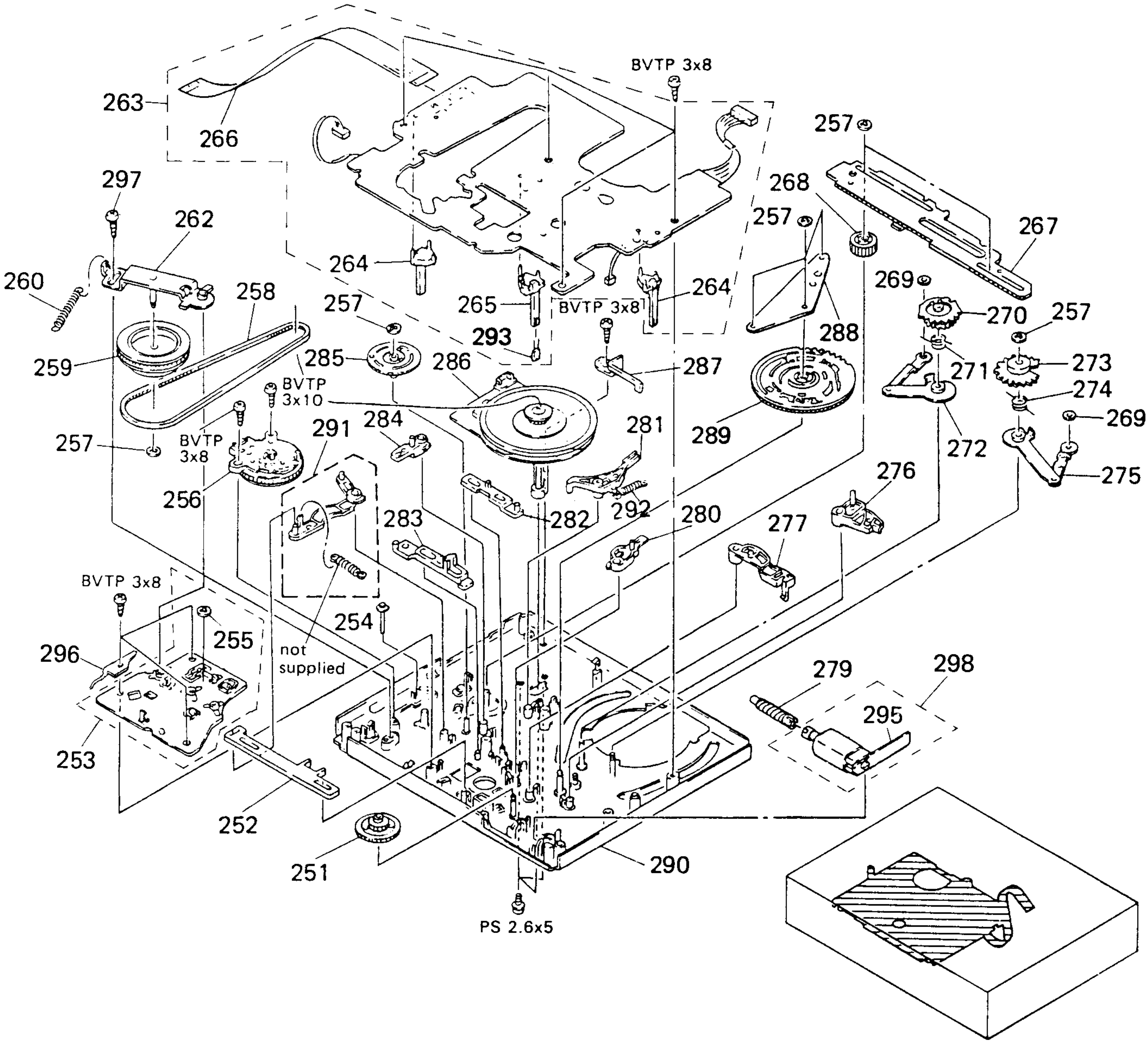
No.	Part No.	Description	Remark
201	A-6759-483-A	TAKE-UP BLOCK ASSY (AT), S	
202	3-736-075-01	BRAKE, S SOFT	
203	3-738-212-21	RETAINER, THRUST, REEL TABLE	
204	X-3729-935-3	TABLE ASSY, REEL, SUPPLY	
205	3-733-389-11	SPRING, TENSION	
206	X-3727-797-1	BAND ASSY, TENSION REGULATOR	
207	X-3727-786-1	SHUTTLE (LEFT) ASSY	
208	X-3733-301-1	ROLLER ASSY, GUIDE	
209	X-3727-767-1	BASE ASSY, STABILIZER	
210	1-543-647-11	HEAD, FE	
211	3-736-082-01	RETAINER, TS THRUST	
212	3-741-925-01	RING, RETAINING	
213	X-3727-771-1	STABLILIZER ASSY, TAPE	
214	1-550-574-11	DRUM ASSY (DZL-22A-R) (M901)	234, 236
215	3-736-047-01	SPRING (S SOFT), TENSION	
216	3-736-041-01	NUT (N3), NYLON	
217	A-6761-129-A	HEAD BLOCK ASSY, ACE	
218	3-736-042-01	SPRING, TORSION	
219	3-736-151-11	ARM (POM), TENSION REGULATOR	

No.	Part No.	Description	Remark
220	X-3729-926-1	BRAKE ASSY (2), T	221
221	3-738-220-01	SPRING (MAIN BRAKE 2), TENSION	
222	X-3733-336-2	BRAKE ASSY (2) (AT), S	221
223	3-738-221-01	SPRING (MAIN BRAKE 1), TENSION	
224	*X-3746-005-1	BASE ASSY (G), DRUM	
225	3-736-055-01	SCREW (3X8), TAPPING	
226	3-736-740-01	NUT (M2X0.25), NYLON	
227	3-736-733-01	FLANGE, 7 GUIDE	
228	3-736-730-01	SLEEVE, #7 GUIDE	
229	3-739-621-01	SPRING, COMPRESSION	
230	X-3727-787-1	SHUTTLE (RIGHT) ASSY	
231	X-3727-788-1	ROLLER ASSY, GUIDE, #2	
232	3-736-745-01	SPRING	
233	A-6747-267-C	ARM BLOCK ASSY (S), C ROLLER	
234	1-550-573-11	UPPER DRUM ASSY (DZR-22R)	
235	3-736-073-01	SLIDER, POLYETHYLENE	
236	2-643-205-01	SCREW, FITTING +PW 3X8, UPPER DRUM	
237	3-738-284-01	SPRING, TENSION	
238	*3-738-249-01	PLATE, FIXED, MD	

5-6. MECHANISM DECK 3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BVTP 3x8
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BVTP 3x10
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BVTP 3x8
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BVTP 3x8
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not supplied
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PS 2.6x5

No.	Part No.	Description	Remark
251	3-736-015-01	WHEEL (CAM), WORM	
252	3-736-158-01	PLATE, SLIDE, PENDULUM	
253	A-6739-084-A	CHASSIS BLOCK ASSY, SUB	255
254	3-736-091-01	PIN, SWITCH	
255	3-669-465-00	WASHER (1.5), STOPPER	
256	1-571-920-11	SWITCH, ROTARY (S1)	
257	3-669-595-00	WASHER (2), STOPPER	
258	3-736-013-01	BELT, TIMING	
259	X-3727-782-1	PULLEY ASSY	
260	3-736-089-01	SPRING, TENSION	
262	X-3727-761-1	ARM ASSY, ADJUSTMENT	
263	*A-6754-055-A	MD-40 BOARD, COMPLETE	264, 265, 293
264	3-736-149-01	HOLDER, ST SENSOR	
265	*3-736-144-01	HOLDER, LED	
267	3-736-177-01	PLATE, SLIDE, MODE	
268	3-733-394-01	GEAR, RVS RELAY	
269	3-736-073-01	SLIDER, POLYETHYLENE	
270	3-736-148-01	GEAR (RIGHT), THREADING	
271	3-736-092-01	SPRING (RIGHT), TORSION	
272	X-3727-777-1	ARM (RIGHT) ASSY, THREADING	
273	3-736-147-01	GEAR (LEFT), THREADING	
274	3-736-040-01	SPRING (LEFT), TORSION	
275	X-3727-778-1	ARM (LEFT) ASSY, THREADING	
276	3-736-142-01	ARM, TENSION REGULATOR FUNCTION	
277	3-736-140-03	ARM, S TAKE-UP	
278	X-3733-302-1	MOTOR ASSY, CAM (M903)	295
279	3-733-395-01	GEAR (CAM), WORM	
280	3-733-397-01	ARM, BRAKE FUNCTION	
281	X-3733-338-1	BRAKE ASSY (AT), CAP	
282	3-733-398-04	PLATE, SLIDE, BRAKE	
283	3-736-103-03	PLATE, SLIDE, LIMITER	
284	3-736-016-01	ARM, LIMITER FUNCTION	
285	3-736-170-01	GEAR, RKB CAM	
286	8-835-382-01	MOTOR, DC U-26B (CAPSTAN) (M902)	
287	3-736-744-01	RETAINER, ROTOR	
288	3-733-396-01	HOLDER, CAM GEAR	
289	3-736-176-01	GEAR, CAM	
291	3-736-139-03	ARM, PENDULUM FUNCTION	
292	3-738-237-01	SPRING (CAP BRAKE), TENSION	
293	8-719-974-65	DIODE GL451V (D001)	
295	*1-633-460-11	CA-41 BOARD	
296	3-741-950-01	SPRING (AT), LEAF, SC GROUND	
297	3-733-386-01	SCREW (3X8), WASHER	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS
  In each case, U: μ , for example:
  UA...: μA..., UPA...: μPA..., UPB...: μPB..., UPC...: μPC..., UPD...: μPD...
- CAPACITORS
  MF : μF, PF : μμF
- COILS
  MMH : mH, UH : μH

Ref.No.	Part No.	Description	Remark
	*A-6721-349-A	MF-100 BOARD, COMPLETE (SLV-474)	
		********************************	
	*A-6721-350-A	MF-100 BOARD, COMPLETE (SLV-474UB)	
		**********************************	
	*A-6721-351-A	MF-100 BOARD, COMPLETE (SLV-474VP)	
		**********************************	
	*3-744-220-01	HOLDER, FL	
		CAPACITOR	
C001	1-164-027-11	CERAMIC 22PF 5% 50V	
C002	1-164-056-11	CERAMIC 27PF 5% 50V	
C003	1-164-056-11	CERAMIC 27PF 5% 50V	
C004	1-164-159-11	CERAMIC 0.1MF 50V	
C005	1-164-159-11	CERAMIC 0.1MF 50V	
C006	1-125-486-11	ELECT 0.22F 5.5V	
C007	1-124-442-00	ELECT 330MF 20% 6.3V	
C008	1-126-096-11	ELECT 10MF 20% 35V	
C009	1-164-159-11	CERAMIC 0.1MF 50V	
C010	1-161-379-00	CERAMIC 0.01MF 30% 16V	
C011	1-161-379-00	CERAMIC 0.01MF 30% 16V	
C012	1-161-379-00	CERAMIC 0.01MF 30% 16V	
C013	1-161-379-00	CERAMIC 0.01MF 30% 16V	
C014	1-161-379-00	CERAMIC 0.01MF 30% 16V	
		CONNECTOR	
CN001	1-569-342-11	CONNECTOR, BOARD TO BOARD 19P	
CN002	1-569-342-11	CONNECTOR, BOARD TO BOARD 19P	
CN003	1-565-309-11	CONNECTOR, FLEXIBLE 4P	
CN004	1-569-339-11	CONNECTOR, BOARD TO BOARD 7P	
CN005	1-568-671-11	CONNECTOR, BOARD TO BOARD 11P	
		TRIMMER CAPACITOR	
CV001	1-141-291-11	CAP, TRIMMER 20P	
		DIODE	
D001	8-719-974-59	DIODE 1SR139-100	
D002	8-719-974-59	DIODE 1SR139-100	
D004	8-719-110-08	DIODE RD8.2ES-B2	
D008	8-719-109-97	DIODE RD6.8ES-B2	
		INDICATOR TUBE	
FL001	1-519-580-11	INDICATOR TUBE, FLUORESCENT	
		IC	
IC001	8-752-815-19	IC CXP50116-080Q	
IC002	8-759-995-76	IC PST529C	
IC003	8-759-971-15	IC PST529H	

Ref.No.	Part No.	Description	Remark
		TRANSISTOR	
Q001	8-729-900-89	TRANSISTOR DTC144ES	
		RESISTOR	
R001	1-249-433-11	CARBON 22K 5% 1/4W	
R002	1-247-895-00	CARBON 470K 5% 1/4W	
R004	1-249-423-11	CARBON 3.3K 5% 1/4W	
R005	1-249-419-11	CARBON 1.5K 5% 1/4W	
R009	1-249-419-11	CARBON 1.5K 5% 1/4W	
R011	1-249-419-11	CARBON 1.5K 5% 1/4W	
R012	1-249-420-11	CARBON 1.8K 5% 1/4W	
R015	1-249-425-11	CARBON 4.7K 5% 1/4W	
R016	1-249-425-11	CARBON 4.7K 5% 1/4W	
R017	1-249-425-11	CARBON 4.7K 5% 1/4W	
R018	1-249-425-11	CARBON 4.7K 5% 1/4W	
R019	1-249-425-11	CARBON 4.7K 5% 1/4W	
R020	1-249-425-11	CARBON 4.7K 5% 1/4W	
R021	1-249-425-11	CARBON 4.7K 5% 1/4W	
R022	1-249-425-11	CARBON 4.7K 5% 1/4W	
R030	1-249-417-11	CARBON 1K 5% 1/4W	
R031	1-249-417-11	CARBON 1K 5% 1/4W	
R032	1-249-420-11	CARBON 1.8K 5% 1/4W	
R033	1-249-413-11	CARBON 470 5% 1/4W	
R034	1-249-417-11	CARBON 1K 5% 1/4W	
R035	1-249-437-11	CARBON 47K 5% 1/4W	
R036	1-249-427-11	CARBON 6.8K 5% 1/4W	
R037	1-249-417-11	CARBON 1K 5% 1/4W (SLV-474/474VP)	
R038	1-249-417-11	CARBON 1K 5% 1/4W (SLV-474VP/474UB)	
		SWITCH	
S001	1-571-977-11	SWITCH, TACTIL (PAUSE)	
S002	1-571-977-11	SWITCH, TACTIL (STOP)	
S003	1-571-977-11	SWITCH, TACTIL (EDIT MONITOR)	
		CRYSTAL	
X001	1-567-519-11	VIBRATOR, CRYSTAL 4.19MHz	
X002	1-567-098-00	VIBRATOR, CRYSTAL 32.768KHz	

****

Ref.No.	Part No.	Description				Remark
	*A-6725-867-A	MA-67 BOARD, COMPLETE (SLV-474) *******************************				
	*A-6724-868-A	MA-67 BOARD, COMPLETE (SLV-474UB) *************************************				
	*A-6724-869-A	MA-67 BOARD, COMPLETE (SLV-474VP) ************************************				
	1-555-110-00	CABLE, PIN				
		BUZZER				
BZ501	1-529-070-11	BUZZER				
		CAPACITOR				
C107	1-126-101-11	ELECT	100MF	20%	16V	
C110	1-124-446-11	ELECT	47MF	20%	10V	
C201	1-164-096-11	CERAMIC	0.01MF		50V	
C202	1-164-058-11	CERAMIC	33PF	5%	50V	
C203	1-164-081-11	CERAMIC	470PF	10%	50V	
C204	1-164-056-11	CERAMIC	27PF	5%	50V	
C205	1-164-096-11	CERAMIC	0.01MF		50V	
C206	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C207	1-124-446-11	ELECT	47MF	20%	10V	
C208	1-164-096-11	CERAMIC	0.01MF		50V	
C303	1-130-483-00	MYLAR	0.01MF	5%	50V	
C304	1-124-120-11	ELECT	220MF	20%	25V	
C305	1-124-443-00	ELECT	100MF	20%	6.3V	
C351	1-164-159-11	CERAMIC	0.1MF		50V	
C352	1-126-233-11	ELECT	22MF	20%	25V	
C353	1-164-096-11	CERAMIC	0.01MF		50V	
C355	1-123-875-11	ELECT	10MF	20%	50V	
C356	1-164-159-11	CERAMIC	0.1MF		50V	
C402	1-164-098-11	CERAMIC	0.047MF		12V	
C403	1-124-446-11	ELECT	47MF	20%	10V	
C404	1-162-209-31	CERAMIC	27PF	5%	50V	
C405	1-164-060-11	CERAMIC	39PF	5%	50V	
C406	1-124-446-11	ELECT	47MF	20%	10V	
C407	1-164-058-11	CERAMIC (SLV-474VP)	33PF	5%	50V	
C408	1-123-875-11	ELECT	10MF	20%	50V	
C410	1-164-096-11	CERAMIC	0.01MF		50V	
C411	1-124-446-11	ELECT	47MF	20%	10V	
C413	1-164-096-11	CERAMIC	0.01MF		50V	
C414	1-164-096-11	CERAMIC	0.01MF		50V	
C415	1-164-023-11	CERAMIC	15PF	5%	50V	
C416	1-164-052-11	CERAMIC	18PF	5%	50V	
C417	1-162-835-11	CERAMIC	0.01MF	20%	16V	
C418	1-164-077-11	CERAMIC	220PF	10%	50V	
C419	1-162-835-11	CERAMIC	0.0047MF	20%	16V	
C420	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C421	1-124-925-11	ELECT	2.2MF	20%	50V	
C451	1-124-446-11	ELECT	47MF	20%	10V	
C452	1-164-096-11	CERAMIC	0.01MF		50V	
C453	1-102-980-00	CERAMIC	270PF	5%	50V	
C454	1-102-980-00	CERAMIC	270PF	5%	50V	
C457	1-102-122-00	CERAMIC	0.0027MF	10%	50V	
C458	1-162-843-11	CERAMIC	0.022MF	20%	16V	
C459	1-124-791-11	ELECT	1MF	20%	50V	
C460	1-164-159-11	CERAMIC	0.1MF		50V	
C461	1-164-082-11	CERAMIC	560PF	10%	50V	
C463	1-124-446-11	ELECT	47MF	20%	10V	
C501	1-124-443-00	ELECT	100MF	20%	6.3V	
C502	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C503	1-164-096-11	CERAMIC	0.01MF		50V	
C504	1-164-049-11	CERAMIC	13PF	5%	50V	
C505	1-164-049-11	CERAMIC	13PF	5%	50V	
C506	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C507	1-161-374-11	CERAMIC	0.0015MF	20%	16V	
C515	1-164-077-11	CERAMIC	220PF	10%	50V	
C551	1-161-772-11	CERAMIC	0.1MF	20%	16V	
C552	1-124-446-11	ELECT	47MF	20%	10V	
C553	1-164-058-11	CERAMIC	33PF	5%	50V	
C554	1-164-058-11	CERAMIC	33PF	5%	50V	
C555	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C600	1-124-443-00	ELECT	100MF	20%	6.3V	
C603	1-126-233-11	ELECT	22MF	20%	25V	
C604	1-126-233-11	ELECT	22MF	20%	25V	
C605	1-126-233-11	ELECT	22MF	20%	25V	
C606	1-126-233-11	ELECT	22MF	20%	25V	
C607	1-124-443-00	ELECT	100MF	20%	6.3V	
C608	1-164-098-11	CERAMIC	0.047MF		12V	
C609	1-124-927-11	ELECT	4.7MF	20%	50V	
C610	1-124-446-11	ELECT	47MF	20%	10V	
C626	1-164-075-11	CERAMIC	150PF	10%	50V	
C627	1-164-075-11	CERAMIC	150PF	10%	50V	
C628	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C630	1-162-827-11	CERAMIC	0.001MF	20%	16V	
C640	1-124-471-00	ELECT	1000MF	20%	6.3V	
C641	1-124-446-11	ELECT	47MF	20%	10V	
C642	1-124-446-11	ELECT	47MF	20%	10V	
C645	1-161-043-00	CERAMIC	0.0022MF	20%	16V	
C646	1-124-927-11	ELECT	4.7MF	20%	50V	
C650	1-124-791-11	ELECT	1MF	20%	50V	
C651	1-124-927-11	ELECT	4.7MF	20%	50V	
C652	1-124-927-11	ELECT	4.7MF	20%	50V	
C653	1-124-446-11	ELECT	47MF	20%	10V	
C654	1-164-096-11	CERAMIC	0.01MF		50V	
C655	1-124-927-11	ELECT	4.7MF	20%	50V	
C657	1-124-927-11	ELECT	4.7MF	20%	50V	
C658	1-124-927-11	ELECT	4.7MF	20%	50V	
C659	1-123-875-11	ELECT	10MF	20%	50V	
C660	1-164-075-11	CERAMIC	150PF	10%	50V	
C661	1-124-443-00	ELECT	100MF	20%	6.3V	
C670	1-124-927-11	ELECT	4.7MF	20%	50V	
C700	1-126-233-11	ELECT	22MF	20%	25V	

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
C703	1-123-875-11	ELECT	10MF	20%	50V	
C705	1-164-096-11	CERAMIC	0.01MF		50V	
C706	1-126-101-11	ELECT	100MF	20%	16V	
C710	1-123-875-11	ELECT	10MF	20%	50V	
C711	1-164-056-11	CERAMIC	27PF	5%	50V	
C713	1-164-056-11	CERAMIC (SLV-474/474VP)	27PF	5%	50V	
C713	1-164-064-11	CERAMIC (SLV-474UB)	56PF	5%	50V	
C715	1-126-101-11	ELECT	100MF	20%	16V	
C716	1-101-886-00	CERAMIC (SLV-474/474VP)	62PF	5%	50V	
C716	1-164-068-11	CERAMIC (SLV-474UB)	82PF	5%	50V	
C717	1-126-101-11	ELECT	100MF	20%	16V	
C718	1-164-089-11	CERAMIC	0.0022MF		50V	
C719	1-164-089-11	CERAMIC	0.0022MF		50V	
C721	1-124-927-11	ELECT	4.7MF	20%	50V	
C723	1-124-499-11	ELECT (SLV-474/474UB)	1MF	20%	50V	
C751	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C752	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C753	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C754	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C755	1-162-827-11	CERAMIC (SLV-474VP)	0.001MF	20%	16V	
C759	1-124-446-11	ELECT	47MF	20%	10V	
C760	1-164-096-11	CERAMIC	0.01MF		50V	
C761	1-164-023-11	CERAMIC (SLV-474UB)	15PF	5%	50V	
C840	1-164-096-11	CERAMIC	0.01MF		50V	
C850	1-162-211-31	CERAMIC	33PF	5%	50V	
C851	1-164-058-11	CERAMIC	33PF	5%	50V	
C852	1-162-209-31	CERAMIC	27PF	5%	50V	
C853	1-164-056-11	CERAMIC	27PF	5%	50V	
C854	1-164-058-11	CERAMIC	33PF	5%	50V	
C855	1-164-058-11	CERAMIC	33PF	5%	50V	
C856	1-124-925-11	ELECT	2.2MF	20%	50V	
C857	1-164-098-11	CERAMIC	0.047MF		12V	
C858	1-164-098-11	CERAMIC	0.047MF		12V	
C859	1-164-098-11	CERAMIC	0.047MF		12V	
C890	1-164-096-11	CERAMIC	0.01MF		50V	
C891	1-124-791-11	ELECT	1MF	20%	50V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN201	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN202	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN203	1-506-982-11	PIN, CONNECTOR 14P	
CN204	1-506-475-11	PIN, CONNECTOR 10P	
CN205	1-506-473-11	PIN, CONNECTOR 8P	
CN206	1-506-476-11	PIN, CONNECTOR 11P	
CN208	1-569-344-11	CONNECTOR, BOARD TO BOARD 19P	
CN209	1-569-344-11	CONNECTOR, BOARD TO BOARD 19P	
CN210	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN216	1-561-534-00	SOCKET 21P	
CN218	*1-566-249-11	PIN, CONNECTOR 9P	
CN600	1-506-473-11	PIN, CONNECTOR 8P	
CN601	1-506-475-11	PIN, CONNECTOR 10P	
CN602	1-506-469-11	PIN, CONNECTOR 4P	
CN651	1-506-468-11	PIN, CONNECTOR 3P	
CN801	*1-566-249-11	PIN, CONNECTOR 9P (SLV-474VP)	

JACK

Ref.No.	Part No.	Description	Remark
CNJ951	1-507-562-00	JACK (SIRCS OUT)	
CNJ952	1-507-562-00	JACK (SIRCS IN)	

TRIMMER CAPACITOR

Ref.No.	Part No.	Description	Remark
CV401	1-141-227-00	CAP, CERAMIC TRIMMER	

DIODE

Ref.No.	Part No.	Description	Remark
D301	8-719-911-19	DIODE 1SS119	
D302	8-719-911-19	DIODE 1SS119	
D303	8-719-911-19	DIODE 1SS119	
D304	8-719-974-59	DIODE 1SR139-100	
D351	8-719-109-85	DIODE RD5.1ES-B2	
D401	8-719-911-19	DIODE 1SS119	
D402	8-719-911-19	DIODE 1SS119	
D403	8-719-911-19	DIODE 1SS119	
D450	8-719-911-19	DIODE 1SS119	
D501	8-719-911-19	DIODE 1SS119	
D502	8-719-911-19	DIODE 1SS119	
D503	8-719-911-19	DIODE 1SS119	
D640	8-719-911-19	DIODE 1SS119	
D641	8-719-911-19	DIODE 1SS119	
D642	8-719-911-19	DIODE 1SS119	
D670	8-719-911-19	DIODE 1SS119	
D671	8-719-911-19	DIODE 1SS119	
D701	8-719-110-78	DIODE RD33ES-B2	
D850	8-719-911-19	DIODE 1SS119	
D851	8-719-911-19	DIODE 1SS119	
D852	8-719-911-19	DIODE 1SS119	
D853	8-719-911-19	DIODE 1SS119	
D901	8-719-109-97	DIODE RD6.8ES-B2	
D902	8-719-109-97	DIODE RD6.8ES-B2	
D903	8-719-109-97	DIODE RD6.8ES-B2	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
D904	8-719-109-97	DIODE RD6.8ES-B2	
D905	8-719-109-97	DIODE RD6.8ES-B2	
D906	8-719-109-97	DIODE RD6.8ES-B2	
D907	8-719-109-97	DIODE RD6.8ES-B2	
D908	8-719-109-97	DIODE RD6.8ES-B2	
D909	8-719-109-97	DIODE RD6.8ES-B2	

IC

Ref.No.	Part No.	Description	Remark
IC101⚠	8-759-983-45	IC BA6238A	
IC103	8-759-923-90	IC BA4560	
IC302	8-759-038-19	IC MC34004P	
IC401	8-759-634-22	IC M50554-182SP	
IC402	8-759-996-03	IC LVA519S	
IC501	8-752-816-59	IC CXP80116-691Q	
IC502	8-759-822-65	IC LC6543H-4374	
IC503	8-759-916-29	IC SN74HC74N	
IC600	8-759-007-20	IC MC74HC4052N	
IC602	8-759-007-21	IC MC74HC4053N	
IC650	8-759-040-53	IC MC14053BCP	
IC652	8-759-945-58	IC RC4558P	
IC840	8-759-501-99	IC ST93C46AB1	
IC850	8-759-920-94	IC MSM6411B-19RS	
IC851	8-759-502-06	IC MB88201P-170N	
IC852	8-759-502-07	IC MB88201P-628N	
IC890	8-759-037-45	IC MC78L08ACPRP	

IF BLOCK

Ref.No.	Part No.	Description	Remark
IF701⚠	1-464-553-21	IF BLOCK (IFB-389) (SLV-474)	
IF701⚠	1-464-583-21	IF BLOCK (IFB-395) (SLV-474UB)	
IF701⚠	1-466-034-11	IF BLOCK (IFV-389A) (SLV-474VP)	

COIL

Ref.No.	Part No.	Description	Remark
L201	1-408-413-00	INDUCTOR 22UH	
L202	1-408-409-00	INDUCTOR 10UH	
L203	1-410-513-11	INDUCTOR 22UH	
L351	1-408-409-00	INDUCTOR 10UH	
L401	1-408-421-00	INDUCTOR 100UH	
L402	1-410-423-11	INDUCTOR 22UH	
L403	1-408-415-00	INDUCTOR 33UH (SLV-474VP)	
L404	1-408-421-00	INDUCTOR 100UH	
L405	1-408-414-00	INDUCTOR 27UH	
L406	1-408-415-00	INDUCTOR 33UH	
L460	1-410-522-11	INDUCTOR 120UH	
L461	1-408-418-00	INDUCTOR 56UH	
L501	1-408-409-00	INDUCTOR 10UH	
L551	1-408-409-00	INDUCTOR 10UH	
L600	1-408-421-00	INDUCTOR 100UH	
L601	1-408-421-00	INDUCTOR 100UH	
L603	1-408-425-00	INDUCTOR 220UH	
L604	1-408-425-00	INDUCTOR 220UH	
L640	1-408-409-00	INDUCTOR 10UH	
L650	1-408-421-00	INDUCTOR 100UH	
L701	1-408-409-00	INDUCTOR 10UH	
L702	1-408-425-00	INDUCTOR 220UH	
L703	1-408-413-00	INDUCTOR 22UH	
L705	1-408-415-00	INDUCTOR 33UH (SLV-474/474VP)	
L705	1-408-413-00	INDUCTOR 22UH (SLV-474UB)	
L706	1-408-409-00	INDUCTOR 10UH	
L710	1-410-513-11	INDUCTOR 22UH	
L840	1-408-409-00	INDUCTOR 10UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q103	8-729-900-61	TRANSISTOR DTA114ES	
Q201	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q202	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q203	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q204	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q301	8-729-900-89	TRANSISTOR DTC144ES	
Q302	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q304	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q401	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q402	8-729-920-70	TRANSISTOR 2SC1740S-QR (SLV-474VP)	
Q403	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q404	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q405	8-729-900-89	TRANSISTOR DTC144ES	
Q406	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q407	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q501	8-729-900-89	TRANSISTOR DTC144ES	
Q600	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q601	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q602	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q603	8-729-900-89	TRANSISTOR DTC144ES	
Q605	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q607	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q609	8-729-900-89	TRANSISTOR DTC144ES	
Q610	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q640	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q641	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q670	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q710	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q711	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q712	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q751	8-729-926-14	TRANSISTOR 2SD1292	
Q835	8-729-900-89	TRANSISTOR DTC144ES	
Q850	8-729-900-89	TRANSISTOR DTC144ES	
Q851	8-729-900-89	TRANSISTOR DTC144ES	
Q852	8-729-900-89	TRANSISTOR DTC144ES	
Q853	8-729-900-89	TRANSISTOR DTC144ES	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
D904	8-719-109-97	DIODE RD6.8ES-B2	
D905	8-719-109-97	DIODE RD6.8ES-B2	
D906	8-719-109-97	DIODE RD6.8ES-B2	
D907	8-719-109-97	DIODE RD6.8ES-B2	
D908	8-719-109-97	DIODE RD6.8ES-B2	
D909	8-719-109-97	DIODE RD6.8ES-B2	
		IC	
IC101⚠	8-759-983-45	IC BA6238A	
IC103	8-759-923-90	IC BA4560	
IC302	8-759-038-19	IC MC34004P	
IC401	8-759-634-22	IC M50554-182SP	
IC402	8-759-996-03	IC LVA519S	
IC501	8-752-816-59	IC CXP80116-691Q	
IC502	8-759-822-65	IC LC6543H-4374	
IC503	8-759-916-29	IC SN74HC74N	
IC600	8-759-007-20	IC MC74HC4052N	
IC602	8-759-007-21	IC MC74HC4053N	
IC650	8-759-040-53	IC MC14053BCP	
IC652	8-759-945-58	IC RC4558P	
IC840	8-759-501-99	IC ST93C46AB1	
IC850	8-759-920-94	IC MSM6411B-19RS	
IC851	8-759-502-06	IC MB88201P-170N	
IC852	8-759-502-07	IC MB88201P-628N	
IC890	8-759-037-45	IC MC78L08ACPRP	
		IF BLOCK	
IF701⚠	1-464-553-21	IF BLOCK (IFB-389)	(SLV-474)
IF701⚠	1-464-583-21	IF BLOCK (IFB-395)	(SLV-474UB)
IF701⚠	1-466-034-11	IF BLOCK (IFV-389A)	(SLV-474VP)
		COIL	
L201	1-408-413-00	INDUCTOR 22UH	
L202	1-408-409-00	INDUCTOR 10UH	
L203	1-410-513-11	INDUCTOR 22UH	
L351	1-408-409-00	INDUCTOR 10UH	
L401	1-408-421-00	INDUCTOR 100UH	
L402	1-410-423-11	INDUCTOR 22UH	
L403	1-408-415-00	INDUCTOR 33UH	(SLV-474VP)
L404	1-408-421-00	INDUCTOR 100UH	
L405	1-408-414-00	INDUCTOR 27UH	
L406	1-408-415-00	INDUCTOR 33UH	
L460	1-410-522-11	INDUCTOR 120UH	
L461	1-408-418-00	INDUCTOR 56UH	
L501	1-408-409-00	INDUCTOR 10UH	
L551	1-408-409-00	INDUCTOR 10UH	
L600	1-408-421-00	INDUCTOR 100UH	
L601	1-408-421-00	INDUCTOR 100UH	

Ref.No.	Part No.	Description	Remark
L603	1-408-425-00	INDUCTOR 220UH	
L604	1-408-425-00	INDUCTOR 220UH	
L640	1-408-409-00	INDUCTOR 10UH	
L650	1-408-421-00	INDUCTOR 100UH	
L701	1-408-409-00	INDUCTOR 10UH	
L702	1-408-425-00	INDUCTOR 220UH	
L703	1-408-413-00	INDUCTOR 22UH	
L705	1-408-415-00	INDUCTOR 33UH	(SLV-474/474VP)
L705	1-408-413-00	INDUCTOR 22UH	(SLV-474UB)
L706	1-408-409-00	INDUCTOR 10UH	
L710	1-410-513-11	INDUCTOR 22UH	
L840	1-408-409-00	INDUCTOR 10UH	
		TRANSISTOR	
Q103	8-729-900-61	TRANSISTOR DTA114ES	
Q201	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q202	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q203	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q204	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q301	8-729-900-89	TRANSISTOR DTC144ES	
Q302	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q304	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q401	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q402	8-729-920-70	TRANSISTOR 2SC1740S-QR	(SLV-474VP)
Q403	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q404	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q405	8-729-900-89	TRANSISTOR DTC144ES	
Q406	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q407	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q501	8-729-900-89	TRANSISTOR DTC144ES	
Q600	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q601	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q602	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q603	8-729-900-89	TRANSISTOR DTC144ES	
Q605	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q607	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q609	8-729-900-89	TRANSISTOR DTC144ES	
Q610	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q640	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q641	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q670	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q710	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q711	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q712	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q751	8-729-926-14	TRANSISTOR 2SD1292	
Q835	8-729-900-89	TRANSISTOR DTC144ES	
Q850	8-729-900-89	TRANSISTOR DTC144ES	
Q851	8-729-900-89	TRANSISTOR DTC144ES	
Q852	8-729-900-89	TRANSISTOR DTC144ES	
Q853	8-729-900-89	TRANSISTOR DTC144ES	

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Replace only with part number specified.

When indicating parts by reference number, please include the board name.

MA-67

Ref.No.	Part No.	Description	Remark
Q854	8-729-900-89	TRANSISTOR DTC144ES	
Q855	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q856	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q857	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q858	8-729-900-89	TRANSISTOR DTC144ES	
Q859	8-729-900-63	TRANSISTOR DTA124ES	
		RESISTOR	
R117	1-249-413-11	CARBON 470 5% 1/4W	
R118	1-249-425-11	CARBON 4.7K 5% 1/4W	
R201	1-249-431-11	CARBON 15K 5% 1/4W	
R202	1-249-430-11	CARBON 12K 5% 1/4W	
R203	1-249-417-11	CARBON 1K 5% 1/4W	
R204	1-249-417-11	CARBON 1K 5% 1/4W	
R205	1-249-418-11	CARBON 1.2K 5% 1/4W	
R206	1-249-417-11	CARBON 1K 5% 1/4W	
R207	1-247-897-11	CARBON 560K 5% 1/4W	
R208	1-249-421-11	CARBON 2.2K 5% 1/4W	
R209	1-249-428-11	CARBON 8.2K 5% 1/4W	
R210	1-249-421-11	CARBON 2.2K 5% 1/4W	
R211	1-249-437-11	CARBON 47K 5% 1/4W	
R212	1-249-405-11	CARBON 100 5% 1/4W	
R213	1-249-412-11	CARBON 390 5% 1/4W	
R214	1-249-427-11	CARBON 6.8K 5% 1/4W	
R215	1-249-435-11	CARBON 33K 5% 1/4W	
R216	1-249-429-11	CARBON 10K 5% 1/4W	
R301	1-247-885-00	CARBON 180K 5% 1/4W	
R302	1-249-417-11	CARBON 1K 5% 1/4W	
R303	1-249-423-11	CARBON 3.3K 5% 1/4W	
R304	1-249-421-11	CARBON 2.2K 5% 1/4W	
R305	1-249-423-11	CARBON 3.3K 5% 1/4W	
R306	1-249-423-11	CARBON 3.3K 5% 1/4W	
R309	1-247-889-00	CARBON 270K 5% 1/4W	
R310	⚠1-247-744-11	CARBON 270 5% 1/2W	F
R312	1-249-441-11	CARBON 100K 5% 1/4W	
R313	1-249-426-11	CARBON 5.6K 5% 1/4W	
R351	1-249-436-11	CARBON 39K 5% 1/4W	
R352	1-249-417-11	CARBON 1K 5% 1/4W	
R353	1-249-435-11	CARBON 33K 5% 1/4W	
R355	1-249-429-11	CARBON 10K 5% 1/4W	
R356	1-249-429-11	CARBON 10K 5% 1/4W	
R359	1-249-435-11	CARBON 33K 5% 1/4W	
R401	1-249-429-11	CARBON 10K 5% 1/4W	
R403	1-249-421-11	CARBON 2.2K 5% 1/4W	
R404	1-249-413-11	CARBON 470 5% 1/4W	
R405	1-249-413-11	CARBON 470 5% 1/4W	
R407	1-249-431-11	CARBON 15K 5% 1/4W	
R408	1-249-435-11	CARBON 33K 5% 1/4W	
R409	1-249-403-11	CARBON 68 5% 1/4W	
R410	1-249-429-11	CARBON 10K 5% 1/4W	(SLV-474VP)
R411	1-249-423-11	CARBON 10K 5% 1/4W	
R412	1-249-405-11	CARBON 100 5% 1/4W	
R413	1-249-414-11	CARBON 560 5% 1/4W	
R414	1-249-433-11	CARBON 22K 5% 1/4W	
R415	1-249-409-11	CARBON 220 5% 1/4W	
R419	1-249-414-11	CARBON 560 5% 1/4W	
R420	1-249-420-11	CARBON 1.8K 5% 1/4W	
R424	1-249-425-11	CARBON 4.7K 5% 1/4W	
R425	1-249-422-11	CARBON 2.7K 5% 1/4W	
R426	1-249-421-11	CARBON 2.2K 5% 1/4W	
R427	1-249-415-11	CARBON 680 5% 1/4W	
R428	1-249-414-11	CARBON 560 5% 1/4W	
R429	1-249-422-11	CARBON 2.7K 5% 1/4W	
R430	1-249-424-11	CARBON 3.9K 5% 1/4W	
R431	1-249-421-11	CARBON 2.2K 5% 1/4W	
R432	1-249-423-11	CARBON 3.3K 5% 1/4W	
R433	1-249-429-11	CARBON 10K 5% 1/4W	(SLV-474VP)
R434	1-249-419-11	CARBON 1.5K 5% 1/4W	
R435	1-247-903-00	CARBON 1M 5% 1/4W	
R436	1-249-422-11	CARBON 2.7K 5% 1/4W	
R437	1-249-429-11	CARBON 10K 5% 1/4W	
R438	1-249-424-11	CARBON 3.9K 5% 1/4W	
R440	1-249-417-11	CARBON 1K 5% 1/4W	
R441	1-249-419-11	CARBON 1.5K 5% 1/4W	
R451	1-249-429-11	CARBON 10K 5% 1/4W	
R452	1-249-429-11	CARBON 10K 5% 1/4W	
R453	1-249-422-11	CARBON 2.7K 5% 1/4W	
R454	1-249-434-11	CARBON 27K 5% 1/4W	
R456	1-249-429-11	CARBON 10K 5% 1/4W	
R457	1-247-903-00	CARBON 1M 5% 1/4W	
R458	1-249-414-11	CARBON 560 5% 1/4W	
R460	1-249-417-11	CARBON 1K 5% 1/4W	
R461	1-249-441-11	CARBON 100K 5% 1/4W	
R490	1-249-417-11	CARBON 1K 5% 1/4W	
R491	1-249-428-11	CARBON 8.2K 5% 1/4W	
R501	1-249-429-11	CARBON 10K 5% 1/4W	
R502	1-249-429-11	CARBON 10K 5% 1/4W	
R503	1-249-429-11	CARBON 10K 5% 1/4W	
R504	1-249-417-11	CARBON 1K 5% 1/4W	
R505	1-249-433-11	CARBON 22K 5% 1/4W	
R506	1-249-433-11	CARBON 22K 5% 1/4W	
R507	1-249-433-11	CARBON 22K 5% 1/4W	
R508	1-249-433-11	CARBON 22K 5% 1/4W	
R509	1-249-433-11	CARBON 22K 5% 1/4W	
R510	1-249-433-11	CARBON 22K 5% 1/4W	
R511	1-249-414-11	CARBON 560 5% 1/4W	
R512	1-249-417-11	CARBON 1K 5% 1/4W	
R513	1-249-429-11	CARBON 10K 5% 1/4W	
R514	1-249-429-11	CARBON 10K 5% 1/4W	
R515	1-249-417-11	CARBON 1K 5% 1/4W	
R516	1-249-441-11	CARBON 100K 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R517	1-249-417-11	CARBON	1K	5%	1/4W	
R518	1-249-417-11	CARBON	1K	5%	1/4W	
R524	1-249-429-11	CARBON	10K	5%	1/4W	
R525	1-249-429-11	CARBON	10K	5%	1/4W	
R553	1-249-433-11	CARBON	22K	5%	1/4W	
R554	1-249-433-11	CARBON	22K	5%	1/4W	
R555	1-249-413-11	CARBON	470	5%	1/4W	
R556	1-249-417-11	CARBON	1K	5%	1/4W	
R560	1-249-437-11	CARBON	47K	5%	1/4W	
R601	1-249-433-11	CARBON	22K	5%	1/4W	
R602	1-249-433-11	CARBON	22K	5%	1/4W	
R603	1-249-433-11	CARBON	22K	5%	1/4W	
R605	1-249-421-11	CARBON	2.2K	5%	1/4W	
R606	1-249-413-11	CARBON	470	5%	1/4W	
R607	1-249-413-11	CARBON	470	5%	1/4W	
R608	1-249-414-11	CARBON	560	5%	1/4W	
R612	1-249-433-11	CARBON	22K	5%	1/4W	
R613	1-249-437-11	CARBON	47K	5%	1/4W	
R615	1-249-417-11	CARBON	1K	5%	1/4W	
R616	1-249-417-11	CARBON	1K	5%	1/4W	
R617	1-249-421-11	CARBON	2.2K	5%	1/4W	
R619	1-249-433-11	CARBON	22K	5%	1/4W	
R620	1-249-421-11	CARBON	2.2K	5%	1/4W	
R621	1-249-421-11	CARBON	2.2K	5%	1/4W	
R622	1-249-421-11	CARBON	2.2K	5%	1/4W	
R623	1-249-417-11	CARBON	1K	5%	1/4W	
R630	1-249-417-11	CARBON	1K	5%	1/4W	
R631	1-249-417-11	CARBON	1K	5%	1/4W	
R636	1-249-426-11	CARBON	5.6K	5%	1/4W	
R637	1-249-426-11	CARBON	5.6K	5%	1/4W	
R638	1-249-413-11	CARBON	470	5%	1/4W	
R639	1-249-404-00	CARBON	82	5%	1/4W	
R640	1-249-405-11	CARBON	100	5%	1/4W	
R641	1-249-405-11	CARBON	100	5%	1/4W	
R642	1-249-403-11	CARBON	68	5%	1/4W	
R643	1-249-417-11	CARBON	1K	5%	1/4W	
R644	1-249-426-11	CARBON	5.6K	5%	1/4W	
R645	1-249-417-11	CARBON	1K	5%	1/4W	
R646	1-249-429-11	CARBON	10K	5%	1/4W	
R647	1-249-405-11	CARBON	100	5%	1/4W	
R648	1-249-421-11	CARBON	2.2K	5%	1/4W	
R650	1-249-437-11	CARBON	47K	5%	1/4W	
R651	1-249-437-11	CARBON	47K	5%	1/4W	
R652	1-249-441-11	CARBON	100K	5%	1/4W	
R655	1-249-437-11	CARBON	47K	5%	1/4W	
R657	1-249-417-11	CARBON	1K	5%	1/4W	
R658	1-249-417-11	CARBON	1K	5%	1/4W	
R661	1-249-429-11	CARBON	10K	5%	1/4W	
R662	1-249-437-11	CARBON	47K	5%	1/4W	
R663	1-249-441-11	CARBON	100K	5%	1/4W	
R664	1-249-408-11	CARBON	180	5%	1/4W	
R665	1-249-417-11	CARBON	1K	5%	1/4W	
R670	1-249-413-11	CARBON	470	5%	1/4W	
R671	1-249-429-11	CARBON	10K	5%	1/4W	
R672	1-249-429-11	CARBON	10K	5%	1/4W	
R690	1-247-883-00	CARBON	150K	5%	1/4W	
R691	1-249-405-11	CARBON	100	5%	1/4W	
R700	1-249-435-11	CARBON	33K	5%	1/4W	
R708	1-249-417-11	CARBON	1K	5%	1/4W	
R709	1-249-417-11	CARBON	1K	5%	1/4W	
R712	1-249-409-11	CARBON	220	5%	1/4W	
R713	1-249-417-11	CARBON	1K	5%	1/4W	
R714	1-249-421-11	CARBON	2.2K	5%	1/4W	
R715	1-249-405-11	CARBON	100	5%	1/4W	
R716	1-249-417-11	CARBON	1K	5%	1/4W	
R717	1-249-417-11	CARBON	1K	5%	1/4W	
R720	1-249-417-11	CARBON	1K	5%	1/4W	
R722	1-249-417-11	CARBON	1K	5%	1/4W	
R723	1-249-417-11	CARBON	1K	5%	1/4W	
R725	1-249-417-11	CARBON (SLV-474/474VP)	1K	5%	1/4W	
R725	1-247-826-00	CARBON	620	5%	1/4W	(SLV-474UB)
R726	1-247-883-00	CARBON	150K	5%	1/4W	
R727	1-247-883-00	CARBON	150K	5%	1/4W	
R728	1-249-405-11	CARBON	100	5%	1/4W	
R730	1-249-424-11	CARBON (SLV-474/474UB)	3.9K	5%	1/4W	
R731	1-249-429-11	CARBON (SLV-474/474UB)	10K	5%	1/4W	
R732	1-249-417-11	CARBON	1K	5%	1/4W	
R735	1-249-421-11	CARBON	2.2K	5%	1/4W	(SLV-474VP)
R737	1-249-424-11	CARBON	3.9K	5%	1/4W	(SLV-474VP)
R755	1-249-437-11	CARBON	47K	5%	1/4W	
R756	1-249-437-11	CARBON	47K	5%	1/4W	
R759	1-249-438-11	CARBON (SLV-474/474UB)	56K	5%	1/4W	
R760	1-249-438-11	CARBON (SLV-474/474UB)	56K	5%	1/4W	
R835	1-249-429-11	CARBON	10K	5%	1/4W	
R840	1-249-417-11	CARBON	1K	5%	1/4W	
R841	1-249-429-11	CARBON	10K	5%	1/4W	
R850	1-249-405-11	CARBON	100	5%	1/4W	
R851	1-249-429-11	CARBON	10K	5%	1/4W	
R852	1-249-429-11	CARBON	10K	5%	1/4W	
R853	1-249-437-11	CARBON	47K	5%	1/4W	
R854	1-249-437-11	CARBON	47K	5%	1/4W	
R855	1-249-405-11	CARBON	100	5%	1/4W	
R856	1-249-429-11	CARBON	10K	5%	1/4W	
R857	1-249-417-11	CARBON	1K	5%	1/4W	
R858	1-249-405-11	CARBON	100	5%	1/4W	
R859	1-249-441-11	CARBON	100K	5%	1/4W	
R860	1-247-883-00	CARBON	150K	5%	1/4W	

When indicating parts by reference number, please include the board name.

MA-67 VP-23 DG-2

Ref.No.	Part No.	Description	Remark
R861	1-249-421-11	CARBON 2.2K 5% 1/4W	

RF MODULATOR

Ref.No.	Part No.	Description	Remark
RF401⚠	1-466-328-11	MODULATOR, RF (RFU-2017) (SLV-474/474VP)	
RF401⚠	1-466-347-11	MODULATOR, RF (RFU-2024) (SLV-474UB)	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV451	1-238-015-11	RES, ADJ, CARBON 4.7K	
RV501	1-238-019-11	RES, ADJ, CARBON 47K	

TUNER

Ref.No.	Part No.	Description	Remark
TU701⚠	1-465-260-11	TUNER, ET (BTP-2C401) (SLV-474/474VP)	
TU701⚠	1-465-262-11	TUNER, ET (BTP-2U601) (SLV-474UB)	

CRYSTAL

Ref.No.	Part No.	Description	Remark
X401	1-577-289-11	VIBRATOR, CRYSTAL 17.7MHZ	
X501	1-577-383-11	VIBRATOR, CRYSTAL 16MHZ	
X551	1-567-192-11	OSCILLATOR, CERAMIC 4MHZ	
X850	1-567-192-11	OSCILLATOR, CERAMIC 4MHZ	
X851	1-567-143-00	OSCILLATOR, CERAMIC 6MHZ	
X852	1-567-192-11	OSCILLATOR, CERAMIC 4MHZ	

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*1-635-929-11 VP-23 BOARD (SLV-474VP)
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C801	1-161-772-11	CERAMIC 0.1MF 20% 16V	
C802	1-164-098-11	CERAMIC 0.047MF 12V	
C803	1-164-058-11	CERAMIC 33PF 5% 50V	
C804	1-164-098-11	CERAMIC 0.047MF 12V	
C805	1-164-058-11	CERAMIC 33PF 5% 50V	
C806	1-161-057-00	CERAMIC 0.033MF 20% 16V	
C810	1-164-075-11	CERAMIC 150PF 10% 50V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN802	*1-563-676-11	SOCKET, CONNECTOR 9P	

IC

Ref.No.	Part No.	Description	Remark
IC801	8-759-030-60	IC SDA5642	
IC802	8-759-143-10	IC UPD75004GB	

COIL

Ref.No.	Part No.	Description	Remark
L841	1-408-409-00	INDUCTOR 10UH	

RESISTOR

Ref.No.	Part No.	Description	Remark
R801	1-249-429-11	CARBON 10K 5% 1/4W	
R802	1-249-429-11	CARBON 10K 5% 1/4W	
R803	1-249-441-11	CARBON 100K 5% 1/4W	
R804	1-247-901-11	CARBON 820K 5% 1/4W	
R805	1-249-405-11	CARBON 100 5% 1/4W	
R806	1-247-901-11	CARBON 820K 5% 1/4W	
R807	1-249-426-11	CARBON 5.6K 5% 1/4W	
R808	1-247-903-11	CARBON 1M 5% 1/4W	
R810	1-249-421-11	CARBON 2.2K 5% 1/4W	
R811	1-249-429-11	CARBON 10K 5% 1/4W	
R812	1-249-429-11	CARBON 10K 5% 1/4W	

CRYSTAL

Ref.No.	Part No.	Description	Remark
X801	1-567-160-21	OSCILLATOR, CERAMIC	

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*A-6727-250-A DG-2 BOARD, COMPLETE
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C101	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C102	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C103	1-126-177-11	ELECT 100MF 20% 6.3V	
C104	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C105	1-126-154-11	ELECT 47MF 20% 6.3V	
C107	1-124-438-00	ELECT 1MF 20% 50V	
C108	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C109	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C110	1-124-438-00	ELECT 1MF 20% 50V	
C111	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C112	1-163-127-00	CERAMIC CHIP 270PF 5% 50V	
C113	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C114	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C115	1-124-442-00	ELECT 330MF 20% 6.3V	
C116	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C117	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C118	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C119	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C120	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C121	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C122	1-124-465-00	ELECT 0.47MF 20% 50V	
C123	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C124	1-124-438-00	ELECT 1MF 20% 50V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
C125	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C126	1-124-463-00	ELECT	0.1MF	20%	50V
C127	1-126-157-11	ELECT	10MF	20%	16V
C128	1-124-438-00	ELECT	1MF	20%	50V
C129	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C130	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C131	1-124-438-00	ELECT	1MF	20%	50V
C132	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C134	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C135	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C136	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C137	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C138	1-124-257-00	ELECT	2.2MF	20%	50V
C139	1-124-438-00	ELECT	1MF	20%	50V
C140	1-124-438-00	ELECT	1MF	20%	50V
C141	1-124-438-00	ELECT	1MF	20%	50V
C142	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C143	1-124-438-00	ELECT	1MF	20%	50V
C144	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C145	1-126-177-11	ELECT	100MF	20%	6.3V
C146	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C147	1-126-177-11	ELECT	100MF	20%	6.3V
C148	1-126-177-11	ELECT	100MF	20%	6.3V
C149	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C150	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C151	1-126-177-11	ELECT	100MF	20%	6.3V
C152	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C153	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C154	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C155	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C156	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C157	1-126-177-11	ELECT	100MF	20%	6.3V
C158	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C159	1-126-177-11	ELECT	100MF	20%	6.3V
C160	1-126-177-11	ELECT	100MF	20%	6.3V
C161	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C162	1-124-438-00	ELECT	1MF	20%	50V
C163	1-124-438-00	ELECT	1MF	20%	50V
C164	1-124-438-00	ELECT	1MF	20%	50V
C165	1-124-438-00	ELECT	1MF	20%	50V
C166	1-124-438-00	ELECT	1MF	20%	50V
C167	1-124-438-00	ELECT	1MF	20%	50V
C168	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C169	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C170	1-126-177-11	ELECT	100MF	20%	6.3V
C171	1-124-438-00	ELECT	1MF	20%	50V
C172	1-124-438-00	ELECT	1MF	20%	50V
C173	1-124-438-00	ELECT	1MF	20%	50V
C174	1-124-465-00	ELECT	0.47MF	20%	50V
C176	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C177	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C178	1-163-009-11	CERAMIC CHIP	0.001MF		50V
C179	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C180	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C181	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C182	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C183	1-124-438-00	ELECT	1MF	20%	50V
C184	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C185	1-126-177-11	ELECT	100MF	20%	6.3V
C186	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C187	1-124-438-00	ELECT	1MF	20%	50V
C188	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C189	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C190	1-164-232-11	CERAMIC CHIP	0.01MF	5%	50V
C191	1-163-009-11	CERAMIC CHIP	0.001MF		50V
C192	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C193	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C194	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C195	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C196	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C197	1-126-177-11	ELECT	100MF	20%	6.3V
C198	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C199	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C200	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C201	1-124-279-11	ELECT	3.3MF	20%	25V
C202	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C203	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C204	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C205	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C206	1-124-442-00	ELECT	330MF	20%	6.3V
C207	1-124-438-00	ELECT	1MF	20%	50V
C208	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C209	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C210	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C211	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C212	1-126-162-11	ELECT	3.3MF	20%	35V
C213	1-126-177-11	ELECT	100MF	20%	6.3V
C214	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C215	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C216	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C217	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C218	1-126-177-11	ELECT	100MF	20%	6.3V
C219	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C220	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C221	1-126-157-11	ELECT	10MF	20%	16V
C223	1-126-154-11	ELECT	47MF	20%	6.3V
C224	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C231	1-126-154-11	ELECT	47MF	20%	6.3V

When indicating parts by reference number, please include the board name.

DG-2

Ref.No.	Part No.	Description	Remark
		TRIMMER CAPACITOR	
CT101	1-141-298-11	CAP, TRIMMER 30PF	
CT102	1-141-260-00	TRIMMER, CERAMIC 50PF	
CT103	1-141-298-11	CAP, TRIMMER 30PF	
		DIODE	
D101	8-719-400-18	DIODE MA152WK	
D102	8-719-200-82	DIODE 11ES2	
		DELAY LINE	
DL101	1-415-440-11	DELAY LINE, LC (444NS)	
		FERRITE BEAD	
FB101	1-543-309-12	BEAD, FERRITE	
FB102	1-543-309-12	BEAD, FERRITE	
		FILTER	
FL101	1-421-927-21	FILTER, NOISE	
FL102	1-421-927-21	FILTER, NOISE	
FL103	1-421-927-21	FILTER, NOISE	
FL104	1-421-927-21	FILTER, NOISE	
FL105	1-421-927-21	FILTER, NOISE	
FL106	1-421-927-21	FILTER, NOISE	
FL107	1-421-927-21	FILTER, NOISE	
FL108	1-421-928-11	FILTER, NOISE	
FL109	1-421-928-11	FILTER, NOISE	
FL110	1-421-928-11	FILTER, NOISE	
FL111	1-421-928-11	FILTER, NOISE	
FL112	1-236-054-11	FILTER, LC (LOW PASS)	
FL113	1-236-360-11	BPF, C	
FL114	1-236-360-11	BPF, C	
FL115	1-421-927-21	FILTER, NOISE	
FL116	1-421-927-21	FILTER, NOISE	
FL117	1-421-927-21	FILTER, NOISE	
FL118	1-421-927-21	FILTER, NOISE	
FL119	1-421-927-21	FILTER, NOISE	
FL120	1-236-360-11	BPF, C	
		IC	
IC101	8-759-633-99	IC M51285BFP-V	
IC102	8-759-631-06	IC M50541FP	
IC103	8-759-633-96	IC M52682FP	
IC104	8-759-926-18	IC SN74HC157NS	
IC105	8-759-925-72	IC MC74HC02NS	
IC106	8-759-031-84	IC SC7S04F	
IC107	8-759-605-15	IC M5M4C500L-10	

Ref.No.	Part No.	Description	Remark
IC108	8-759-633-04	IC M52686AFP	
IC109	8-759-941-68	IC BA7131F	
IC110	8-759-603-54	IC M51271FP	
IC111	8-759-631-10	IC M52684AFP	
IC112	8-759-009-07	IC MC14053BF	
IC113	8-759-710-12	IC NJM2230M	
		COIL	
L103	1-407-169-99	INDUCTOR 100UH	
L104	1-407-169-99	INDUCTOR 100UH	
L105	1-407-169-99	INDUCTOR 100UH	
L106	1-407-169-99	INDUCTOR 100UH	
L107	1-410-389-31	INDUCTOR CHIP 47UH	
L108	1-407-169-99	INDUCTOR 100UH	
L109	1-407-169-99	INDUCTOR 100UH	
L110	1-407-169-99	INDUCTOR 100UH	
L111	1-407-169-99	INDUCTOR 100UH	
L112	1-407-169-99	INDUCTOR 100UH	
		TRANSISTOR	
Q101	8-729-271-23	TRANSISTOR 2SC2712	
Q102	8-729-271-23	TRANSISTOR 2SC2712	
Q103	8-729-271-23	TRANSISTOR 2SC2712	
Q104	8-729-216-22	TRANSISTOR 2SA1162	
Q105	8-729-901-03	TRANSISTOR DTC144WK	
Q106	8-729-216-22	TRANSISTOR 2SA1162	
Q107	8-729-216-22	TRANSISTOR 2SA1162	
Q108	8-729-216-22	TRANSISTOR 2SA1162	
Q109	8-729-271-23	TRANSISTOR 2SC2712	
Q111	8-729-271-23	TRANSISTOR 2SC2712	
Q112	8-729-216-22	TRANSISTOR 2SA1162	
		RESISTOR	
R101	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R102	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R103	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R104	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R105	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R106	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R107	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R108	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R109	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R110	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R111	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R112	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R113	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R114	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R115	1-216-041-00	METAL GLAZE 470 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R116	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R117	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R118	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R119	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R120	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R121	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R122	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R123	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R124	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R125	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R126	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R127	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R128	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R129	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R131	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R132	1-216-034-00	METAL GLAZE	240	5%	1/10W	
R133	1-216-018-00	METAL GLAZE	51	5%	1/10W	
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R135	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R136	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R137	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R138	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R139	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R140	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R141	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R142	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R143	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R145	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R146	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R147	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R149	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R150	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R151	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R152	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R153	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R154	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R155	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R156	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R157	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R158	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R159	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R160	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R161	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R162	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R163	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R164	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R165	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R166	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R167	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R168	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R169	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R170	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R171	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R172	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R173	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R174	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R175	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R176	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R177	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R178	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R179	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R180	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R182	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R183	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R184	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R185	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R186	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R187	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R188	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R189	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R190	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R191	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R192	1-216-295-00	METAL GLAZE	0	5%	1/10W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV101	1-230-520-11	RES, ADJ, SOLID 1K	
RV102	1-230-521-11	RES, ADJ, SOLID 2.2K	
RV103	1-230-526-11	RES, ADJ, SOLID 47K	

CRYSTAL

Ref.No.	Part No.	Description	Remark
X101	1-577-165-11	VIBLATOR, CERAMIC 500KHZ	
X102	1-567-733-11	VIBRATOR, CRYSTAL 17.7MHZ	
X103	1-577-164-11	VIBLATOR, CERAMIC 30.2MHZ	
X104	1-567-733-11	VIBRATOR, CRYSTAL 17.7MHZ	
X105	1-577-165-11	VIBLATOR, CERAMIC 500KHZ	

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When indicating parts by reference number, please include the board name.

MJ-41 MF-98 MF-99

*1-635-928-11 MJ-41 BOARD

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CONNECTOR

Ref.No.	Part No.	Description	Remark
CN062	1-506-468-11	PIN, CONNECTOR 3P	
CN062	1-506-468-11	PIN, CONNECTOR 3P	

JACK

Ref.No.	Part No.	Description	Remark
CNJ063	1-565-457-11	JACK (MIC)	

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*1-635-923-11 MF-98 BOARD

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CAPACITOR

Ref.No.	Part No.	Description				Remark
C061	1-162-284-31	CERAMIC	150PF	10%	50V	
C062	1-162-284-31	CERAMIC	150PF	10%	50V	
C063	1-164-159-11	CERAMIC	0.1MF		50V	
C065	1-161-379-00	CERAMIC	0.01MF	30%	16V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN060	1-568-665-11	CONNECTOR, BOARD TO BOARD 11P	
CN061	1-506-469-11	PIN, CONNECTOR 4P	

JACK

Ref.No.	Part No.	Description	Remark
CNJ061	1-569-444-11	JACK, PIN 2P (AUDIO/VIDEO)	
CNJ062	1-563-467-11	SOCKET, SMALL TYPE 5P (LAMC)	

DIODE

Ref.No.	Part No.	Description	Remark
D061	8-719-940-82	DIODE SLR-34MC3	
D062	8-719-940-82	DIODE SLR-34MC3	
D063	8-719-109-97	DIODE RD6.8ES-B2	
D066	8-719-940-99	SLR-34VC3 (SLV-474UB)	
D067	8-719-940-99	SLR-34VC3 (SLV-474UB)	
D069	8-719-109-97	DIODE RD6.8ES-B2	
D070	8-719-109-97	DIODE RD6.8ES-B2	
D073	8-719-911-19	DIODE 1SS119 (SLV-4747UB)	
D074	8-719-946-30	DIODE SLR-34DC3	
D075	8-719-110-22	DIODE RD11ES-B2	

IC

Ref.No.	Part No.	Description	Remark
IC061	1-466-131-11	CATCHER RAY BLOCK (GP1U52X)	

COIL

Ref.No.	Part No.	Description		Remark
L061	1-410-336-11	INDUCTOR	220UH	

RESISTOR

Ref.No.	Part No.	Description				Remark
R062	1-249-423-11	CARBON	3.3K	5%	1/4W	
R063	1-249-401-11	CARBON	47	5%	1/4W	
R065	1-249-427-11	CARBON	6.8K	5%	1/4W	
R066	1-249-423-11	CARBON	3.3K	5%	1/4W	
R067	1-249-404-00	CARBON	82	5%	1/4W	
R068	1-249-422-11	CARBON	2.7K	5%	1/4W	
R071	1-249-405-11	CARBON	100	5%	1/4W	(SLV-474UB)
R072	1-249-404-00	CARBON	82	5%	1/4W	
R073	1-249-420-11	CARBON	1.8K	5%	1/4W	
R078	1-249-409-11	CARBON	220	5%	1/4W	
R079	1-249-409-11	CARBON	220	5%	1/4W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV061	1-230-819-11	RES, VAR, CARBON 2K (SHARPNESS)	

SWITCH

Ref.No.	Part No.	Description	Remark
S061	1-571-977-11	SWITCH, TACTIL (POWER)	
S062	1-571-977-11	SWITCH, TACTIL (EJECT)	
S063	1-570-854-11	SWITCH, SLIDE (VTR MODE)	
S064	1-570-865-11	SWITCH, SLIDE (LANC M/S)	
S065	1-571-977-11	SWITCH, TACTIL (VPS) (SLV-474VP)	

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*1-635-924-11 MF-99 BOARD

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*3-741-965-01 HOLDER, PC BOARD

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN080	1-569-336-11	CONNECTOR, BOARD TO BOARD 7P	

SWITCH

Ref.No.	Part No.	Description	Remark
S081	1-466-302-11	SWITCH, ROTARY (PB)	

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
	*A-6727-189-A	RP-100 BOARD, COMPLETE	

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Ref.No	Part No.	Description	Remark
	*3-746-014-01	CASE (MAIN), GRP	
	*3-746-015-01	CASE (UPPER), GRP	

CAPACITOR

Ref.No	Part No.	Description			Remark
C001	1-162-839-11	CERAMIC	0.01MF	10%	16V
C002	1-124-465-00	ELECT	0.47MF	20%	50V
C003	1-124-465-00	ELECT	0.47MF	20%	50V
C004	1-164-031-11	CERAMIC	33PF	5%	50V
C005	1-164-031-11	CERAMIC	33PF	5%	50V
C006	1-124-465-00	ELECT	0.47MF	20%	50V
C007	1-124-465-00	ELECT	0.47MF	20%	50V
C008	1-162-306-11	CERAMIC	0.01MF	20%	16V
C009	1-162-306-11	CERAMIC	0.01MF	20%	16V
C010	1-124-465-00	ELECT	0.47MF	20%	50V
C011	1-124-465-00	ELECT	0.47MF	20%	50V
C012	1-164-027-11	CERAMIC	22PF	5%	50V
C013	1-164-031-11	CERAMIC	33PF	5%	50V
C014	1-124-465-00	ELECT	0.47MF	20%	50V
C015	1-124-465-00	ELECT	0.47MF	20%	50V
C016	1-162-839-11	CERAMIC	0.01MF	10%	16V
C017	1-162-306-11	CERAMIC	0.01MF	20%	16V
C018	1-126-154-11	ELECT	47MF	20%	6.3V
C019	1-162-306-11	CERAMIC	0.01MF	20%	16V
C020	1-126-154-11	ELECT	47MF	20%	6.3V
C021	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C022	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C023	1-162-839-11	CERAMIC	0.01MF	10%	16V
C024	1-124-463-00	ELECT	0.1MF	20%	50V
C025	1-162-839-11	CERAMIC	0.01MF	10%	16V
C026	1-162-306-11	CERAMIC	0.01MF	20%	16V
C027	1-164-027-11	CERAMIC	22PF	5%	50V
C028	1-162-839-11	CERAMIC	0.01MF	10%	16V
C029	1-162-839-11	CERAMIC	0.01MF	10%	16V
C030	1-164-023-11	CERAMIC	15PF	5%	50V
C031	1-162-839-11	CERAMIC	0.01MF	10%	16V
C032	1-164-033-11	CERAMIC	39PF	5%	50V
C033	1-162-839-11	CERAMIC	0.01MF	10%	16V
C034	1-102-973-00	CERAMIC	100PF	5%	50V
C035	1-101-888-00	CERAMIC	68PF	5%	50V
C036	1-102-820-00	CERAMIC	330PF	5%	50V
C037	1-162-839-11	CERAMIC	0.01MF	10%	16V
C038	1-126-154-11	ELECT	47MF	20%	6.3V
C039	1-162-839-11	CERAMIC	0.01MF	10%	16V
C040	1-162-839-11	CERAMIC	0.01MF	10%	16V
C041	1-162-839-11	CERAMIC	0.01MF	10%	16V
C042	1-162-839-11	CERAMIC	0.01MF	10%	16V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN001	1-569-709-11	SOCKET, CONNECTOR 8P	
CN002	*1-564-030-00	PIN, CONNECTOR 5P	
CN003	1-506-489-11	PIN, CONNECTOR 10P	
CN004	1-506-489-11	PIN, CONNECTOR 10P	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-911-19	DIODE 1SS119	
D003	8-719-911-19	DIODE 1SS119	

IC

Ref.No	Part No.	Description	Remark
IC001	8-759-320-52	IC HA118019NT	

COIL

Ref.No	Part No.	Description		Remark
L001	1-407-169-XX	INDUCTOR	100UH	
L002	1-407-169-XX	INDUCTOR	100UH	
L003	1-408-975-21	INDUCTOR	27UH	
L004	1-408-973-21	INDUCTOR	18UH	
L005	1-408-977-21	INDUCTOR	39UH	
L006	1-408-970-21	INDUCTOR	10UH	
L007	1-408-973-21	INDUCTOR	18UH	
L008	1-408-985-21	INDUCTOR	180UH	
L009	1-407-169-XX	INDUCTOR	100UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q002	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q003	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q004	8-729-900-89	TRANSISTOR DTC144ES	
Q005	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q006	8-729-900-89	TRANSISTOR DTC144ES	
Q007	8-729-900-89	TRANSISTOR DTC144ES	

RESISTOR

Ref.No	Part No.	Description				Remark
R001	1-249-404-00	CARBON	82	5%	1/4W	
R002	1-249-403-11	CARBON	68	5%	1/4W	
R003	1-249-404-00	CARBON	82	5%	1/4W	
R004	1-249-405-11	CARBON	100	5%	1/4W	
R005	1-249-429-11	CARBON	10K	5%	1/4W	
R007	1-249-429-11	CARBON	10K	5%	1/4W	
R008	1-249-429-11	CARBON	10K	5%	1/4W	
R009	1-247-891-00	CARBON	330K	5%	1/4W	
R010	1-249-420-11	CARBON	1.8K	5%	1/4W	
R011	1-247-895-00	CARBON	470K	5%	1/4W	
R012	1-249-433-11	CARBON	22K	5%	1/4W	
R013	1-249-432-11	CARBON	18K	5%	1/4W	
R014	1-249-417-11	CARBON	1K	5%	1/4W	
R016	1-249-417-11	CARBON	1K	5%	1/4W	
R017	1-249-421-11	CARBON	2.2K	5%	1/4W	
R018	1-249-421-11	CARBON	2.2K	5%	1/4W	
R019	1-249-412-11	CARBON	390	5%	1/4W	
R020	1-249-412-11	CARBON	390	5%	1/4W	
R021	1-249-416-11	CARBON	820	5%	1/4W	
R022	1-249-426-11	CARBON	5.6K	5%	1/4W	
R023	1-249-421-11	CARBON	2.2K	5%	1/4W	
R024	1-249-413-11	CARBON	470	5%	1/4W	
R025	1-249-415-11	CARBON	680	5%	1/4W	
R026	1-249-414-11	CARBON	560	5%	1/4W	
R027	1-249-416-11	CARBON	820	5%	1/4W	
R028	1-249-417-11	CARBON	1K	5%	1/4W	
R029	1-249-418-11	CARBON	1.2K	5%	1/4W	
R030	1-249-419-11	CARBON	1.5K	5%	1/4W	
R031	1-249-421-11	CARBON	2.2K	5%	1/4W	
R032	1-249-417-11	CARBON	1K	5%	1/4W	
R033	1-249-429-11	CARBON	10K	5%	1/4W	

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When indicating parts by reference number, please include the board name.

YC-90

Ref.No	Part No.	Description			Remark
	*A-6727-187-A	YC-90 BOARD, COMPLETE **********************			
	*3-738-015-01	COVER, (DIA. 6) CARBON VR			
	*3-746-013-01	HOLDER (Y), PC BOARD			
		CAPACITOR			
C701	1-164-095-11	CERAMIC	0.01MF	10%	16V
C702	1-164-096-11	CERAMIC	0.01MF		50V
C703	1-124-927-11	ELECT	4.7MF	20%	50V
C704	1-126-233-11	ELECT	22MF	20%	25V
C705	1-162-851-11	CERAMIC	0.1MF	10%	16V
C706	1-124-927-11	ELECT	4.7MF	20%	50V
C707	1-124-927-11	ELECT	4.7MF	20%	50V
C708	1-164-046-11	CERAMIC	10PF	0.5PF	50V
C709	1-124-446-11	ELECT	47MF	20%	10V
C710	1-164-098-11	CERAMIC	0.047MF		12V
C711	1-102-820-00	CERAMIC	330PF	5%	50V
C712	1-102-822-00	CERAMIC	390PF	5%	50V
C713	1-162-293-31	CERAMIC	820PF	10%	50V
C714	1-164-096-11	CERAMIC	0.01MF		50V
C715	1-164-096-11	CERAMIC	0.01MF		50V
C716	1-124-446-11	ELECT	47MF	20%	10V
C718	1-124-927-11	ELECT	4.7MF	20%	50V
C723	1-164-096-11	CERAMIC	0.01MF		50V
C724	1-164-097-11	CERAMIC	0.022MF		50V
C725	1-164-096-11	CERAMIC	0.01MF		50V
C726	1-164-096-11	CERAMIC	0.01MF		50V
C727	1-164-096-11	CERAMIC	0.01MF		50V
C728	1-164-060-11	CERAMIC	39PF	5%	50V
C730	1-164-096-11	CERAMIC	0.01MF		50V
C731	1-124-446-11	ELECT	47MF	20%	10V
C732	1-164-068-11	CERAMIC	82PF	5%	50V
C733	1-164-058-11	CERAMIC	33PF	5%	50V
C734	1-102-824-00	CERAMIC	470PF	5%	50V
C735	1-162-851-11	CERAMIC	0.1MF	10%	16V
C736	1-164-066-11	CERAMIC	68PF	5%	50V
C737	1-164-096-11	CERAMIC	0.01MF		50V
C738	1-124-925-11	ELECT	2.2MF	20%	50V
C739	1-162-280-31	CERAMIC	82PF	10%	50V
C740	1-164-056-11	CERAMIC	27PF	5%	50V
C741	1-124-446-11	ELECT	47MF	20%	10V
C743	1-162-851-11	CERAMIC	0.1MF	10%	16V
C744	1-124-446-11	ELECT	47MF	20%	10V
C746	1-164-096-11	CERAMIC	0.01MF		50V
C747	1-162-851-11	CERAMIC	0.1MF	10%	16V
C749	1-162-851-11	CERAMIC	0.1MF	10%	16V
C750	1-164-096-11	CERAMIC	0.01MF		50V
C751	1-162-851-11	CERAMIC	0.1MF	10%	16V
C753	1-124-446-11	ELECT	47MF	20%	10V
C754	1-164-058-11	CERAMIC	33PF	5%	50V
C755	1-164-072-11	CERAMIC	120PF	5%	50V
C756	1-102-978-00	CERAMIC	220PF	5%	50V
C760	1-164-096-11	CERAMIC	0.01MF		50V
C763	1-124-927-11	ELECT	4.7MF	20%	50V
C766	1-124-927-11	ELECT	4.7MF	20%	50V
C768	1-164-096-11	CERAMIC	0.01MF		50V
C770	1-102-978-00	CERAMIC	220PF	5%	50V
C780	1-162-851-11	CERAMIC	0.1MF	10%	16V
C782	1-164-068-11	CERAMIC	82PF	5%	50V
C783	1-102-820-00	CERAMIC	330PF	5%	50V
C785	1-164-096-11	CERAMIC	0.01MF		50V
C790	1-164-096-11	CERAMIC	0.01MF		50V
C801	1-162-851-11	CERAMIC	0.1MF	10%	16V
C802	1-124-446-11	ELECT	47MF	20%	10V
C803	1-164-096-11	CERAMIC	0.01MF		50V
C804	1-162-851-11	CERAMIC	0.1MF	10%	16V
C805	1-164-097-11	CERAMIC	0.022MF		50V
C806	1-164-096-11	CERAMIC	0.01MF		50V
C807	1-164-096-11	CERAMIC	0.01MF		50V
C808	1-164-096-11	CERAMIC	0.01MF		50V
C809	1-102-978-00	CERAMIC	220PF	5%	50V
C810	1-102-978-00	CERAMIC	220PF	5%	50V
C811	1-164-031-11	CERAMIC	33PF	5%	50V
C812	1-164-096-11	CERAMIC	0.01MF		50V
C813	1-124-443-00	ELECT	100MF	20%	6.3V
C814	1-124-443-00	ELECT	100MF	20%	6.3V
C815	1-136-169-00	MYLAR	0.22MF	5%	50V
C816	1-124-927-11	ELECT	4.7MF	20%	50V
C817	1-164-096-11	CERAMIC	0.01MF		50V
C818	1-161-061-11	CERAMIC	0.068MF	10%	25V
C819	1-124-443-00	ELECT	100MF	20%	6.3V
C820	1-164-070-11	CERAMIC	100PF	5%	50V
C823	1-124-927-11	ELECT	4.7MF	20%	50V
C825	1-162-851-11	CERAMIC	0.1MF	10%	16V
C826	1-164-098-11	CERAMIC	0.047MF		12V
C827	1-162-851-11	CERAMIC	0.1MF	10%	16V
C828	1-164-096-11	CERAMIC	0.01MF		50V
C829	1-164-096-11	CERAMIC	0.01MF		50V
C830	1-162-851-11	CERAMIC	0.1MF	10%	16V
C831	1-101-361-00	CERAMIC	150PF	5%	50V
C832	1-124-791-11	ELECT	1MF	20%	50V
C833	1-164-096-11	CERAMIC	0.01MF		50V
C834	1-123-382-00	ELECT	3.3MF	20%	50V
C835	1-164-096-11	CERAMIC	0.01MF		50V
C836	1-162-851-11	CERAMIC	0.1MF	10%	16V
C837	1-164-052-11	CERAMIC	18PF	5%	50V
C840	1-164-096-11	CERAMIC	0.01MF		50V
C841	1-164-096-11	CERAMIC	0.01MF		50V
C842	1-164-096-11	CERAMIC	0.01MF		50V
C844	1-164-096-11	CERAMIC	0.01MF		50V
C847	1-124-446-11	ELECT	47MF	20%	10V
C848	1-164-096-11	CERAMIC	0.01MF		50V
C849	1-130-495-00	MYLAR	0.1MF	5%	50V
C850	1-164-091-11	CERAMIC	0.0022MF	10%	50V
C851	1-102-978-00	CERAMIC	220PF	5%	50V

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Ref.No	Part No.	Description			Remark
C852	1-162-851-11	CERAMIC	0.1MF	10%	16V
C853	1-124-446-11	ELECT	47MF	20%	10V
C854	1-124-927-11	ELECT	4.7MF	20%	50V
C855	1-124-446-11	ELECT	47MF	20%	10V
C857	1-164-096-11	CERAMIC	0.01MF		50V
C858	1-164-072-11	CERAMIC	120PF	5%	50V
C859	1-123-875-11	ELECT	10MF	20%	50V
C860	1-123-875-11	ELECT	10MF	20%	50V
C861	1-164-092-11	CERAMIC	0.0033MF	10%	25V
C862	1-101-361-00	CERAMIC	150PF	5%	50V
C863	1-124-791-11	ELECT	1MF	20%	50V
C864	1-124-446-11	ELECT	47MF	20%	10V
C865	1-124-446-11	ELECT	47MF	20%	10V
C866	1-124-791-11	ELECT	1MF	20%	50V
C867	1-123-875-11	ELECT	10MF	20%	50V
C868	1-164-077-11	CERAMIC	220PF	10%	50V
C869	1-164-096-11	CERAMIC	0.01MF		50V
C870	1-164-056-11	CERAMIC	27PF	5%	50V
C871	1-164-056-11	CERAMIC	27PF	5%	50V
C872	1-164-096-11	CERAMIC	0.01MF		50V
C873	1-164-054-11	CERAMIC	22PF	5%	50V
C874	1-164-096-11	CERAMIC	0.01MF		50V
C875	1-162-851-11	CERAMIC	0.1MF	10%	16V
C876	1-130-475-00	MYLAR	0.0022MF	5%	50V
C877	1-164-096-11	CERAMIC	0.01MF		50V
C878	1-130-475-00	MYLAR	0.0022MF	5%	50V
C879	1-164-098-11	CERAMIC	0.047MF		12V
C880	1-124-791-11	ELECT	1MF	20%	50V
C881	1-123-875-11	ELECT	10MF	20%	50V
C882	1-123-382-00	ELECT	3.3MF	20%	50V
C883	1-164-096-11	CERAMIC	0.01MF		50V
C884	1-164-096-11	CERAMIC	0.01MF		50V
C885	1-123-875-11	ELECT	10MF	20%	50V
C886	1-162-851-11	CERAMIC	0.1MF	10%	16V
C887	1-162-851-11	CERAMIC	0.1MF	10%	16V
C888	1-123-875-11	ELECT	10MF	20%	50V
C889	1-164-062-11	CERAMIC	47PF	5%	50V
C890	1-164-050-11	CERAMIC	15PF	5%	50V
C891	1-164-066-11	CERAMIC	68PF	5%	50V
C892	1-164-066-11	CERAMIC	68PF	5%	50V
C893	1-124-446-11	ELECT	47MF	20%	10V
C894	1-124-446-11	ELECT	47MF	20%	10V
C895	1-164-096-11	CERAMIC	0.01MF		50V
C896	1-124-446-11	ELECT	47MF	20%	10V
C897	1-124-927-11	ELECT	4.7MF	20%	50V
C898	1-164-096-11	CERAMIC	0.01MF		50V
C899	1-164-085-11	CERAMIC	0.001MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description
CN701	1-506-471-11	PIN, CONNECTOR 6P
CN702	1-506-473-11	PIN, CONNECTOR 8P
CN703	1-506-476-11	PIN, CONNECTOR 11P
CN704	1-506-469-11	PIN, CONNECTOR 4P

DIODE

Ref.No	Part No.	Description		Remark
D701	8-719-911-19	DIODE 1SS119		
D705	8-719-911-19	DIODE 1SS119		
D801	8-719-911-19	DIODE 1SS119		

DELAY LINE

Ref.No	Part No.	Description
DL801	1-415-602-11	DELAY LINE, GLASS

FILTER

Ref.No	Part No.	Description
FL701	1-236-312-11	FILTER, BAND PASS
FL801	1-239-915-11	FILTER, BAND PASS
FL802	1-236-311-11	FILTER, BAND PASS (5.06MHz)
FL803	1-527-849-00	FILTER, CERAMIC
FL850	1-527-943-00	FILTER, CERAMIC (4.5MHz)

IC

Ref.No	Part No.	Description
IC701	8-759-420-07	IC AN3231K
IC702	8-752-321-89	IC CXL5003P
IC801	8-759-320-78	IC HA118016NT
IC802	8-759-822-05	IC LA7213
IC850	8-759-904-95	IC BA7007
IC860	8-759-420-53	IC AN3592K
IC861	8-759-991-54	IC MSM6989RS
IC862	8-752-006-12	IC CX20061
IC863	8-759-822-05	IC LA7213

COIL

Ref.No	Part No.	Description	
L701	1-408-421-00	INDUCTOR	100UH
L704	1-408-420-00	INDUCTOR	82UH
L705	1-408-422-00	INDUCTOR	120UH
L706	1-408-421-00	INDUCTOR	100UH
L707	1-408-421-00	INDUCTOR	100UH
L708	1-408-421-00	INDUCTOR	100UH
L709	1-408-421-00	INDUCTOR	100UH
L712	1-408-410-00	INDUCTOR	12UH
L713	1-408-413-00	INDUCTOR	22UH
L726	1-408-424-00	INDUCTOR	180UH
L801	1-408-421-00	INDUCTOR	100UH
L802	1-408-427-00	INDUCTOR	330UH
L803	1-408-429-00	INDUCTOR	470UH
L805	1-408-409-00	INDUCTOR	10UH
L806	1-408-408-00	INDUCTOR	8.2UH
L807	1-408-408-00	INDUCTOR	8.2UH
L809	1-407-499-00	INDUCTOR	3.9MMH
L850	1-407-499-00	INDUCTOR	3.9MMH
L861	1-408-415-00	INDUCTOR	33UH
L862	1-408-409-00	INDUCTOR	10UH
L863	1-408-409-00	INDUCTOR	10UH
L880	1-408-421-00	INDUCTOR	100UH
L881	1-408-421-00	INDUCTOR	100UH
L882	1-408-411-00	INDUCTOR	15UH
L883	1-408-414-00	INDUCTOR	27UH

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
L891	1-408-409-00	INDUCTOR	10UH			
L892	1-408-409-00	INDUCTOR	10UH			
L893	1-408-409-00	INDUCTOR	10UH			

TRANSISTOR

Ref.No	Part No.	Description		Remark
Q702	8-729-920-68	TRANSISTOR	2SA933S-QR	
Q704	8-729-900-89	TRANSISTOR	DTC144ES	
Q705	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q706	8-729-920-68	TRANSISTOR	2SA933S-QR	
Q710	8-729-900-89	TRANSISTOR	DTC144ES	
Q711	8-729-920-68	TRANSISTOR	2SA933S-QR	
Q721	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q722	8-729-900-89	TRANSISTOR	DTC144ES	
Q723	8-729-900-89	TRANSISTOR	DTC144ES	
Q801	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q803	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q804	8-729-900-80	TRANSISTOR	DTC114ES	
Q805	8-729-920-68	TRANSISTOR	2SA933S-QR	
Q806	8-729-900-89	TRANSISTOR	DTC144ES	
Q807	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q808	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q809	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q810	8-729-900-65	TRANSISTOR	DTA144ES	
Q813	8-729-903-02	TRANSISTOR	DTA143XS	
Q850	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q851	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q852	8-729-900-89	TRANSISTOR	DTC144ES	
Q860	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q862	8-729-900-89	TRANSISTOR	DTC144ES	
Q880	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q881	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q882	8-729-920-68	TRANSISTOR	2SA933S-QR	
Q883	8-729-920-70	TRANSISTOR	2SC1740S-QR	
Q884	8-729-900-89	TRANSISTOR	DTC144ES	

RESISTOR

Ref.No	Part No.	Description				Remark
R701	1-247-887-00	CARBON	220K	5%	1/4W	
R702	1-249-421-11	CARBON	2.2K	5%	1/4W	
R703	1-249-428-11	CARBON	8.2K	5%	1/4W	
R704	1-249-427-11	CARBON	6.8K	5%	1/4W	
R705	1-249-426-11	CARBON	5.6K	5%	1/4W	
R706	1-249-421-11	CARBON	2.2K	5%	1/4W	
R707	1-247-834-11	CARBON	1.3K	5%	1/4W	
R708	1-247-818-11	CARBON	300	5%	1/4W	
R709	1-249-423-11	CARBON	3.3K	5%	1/4W	
R710	1-249-438-11	CARBON	56K	5%	1/4W	
R713	1-249-421-11	CARBON	2.2K	5%	1/4W	
R714	1-249-425-11	CARBON	4.7K	5%	1/4W	
R717	1-249-420-11	CARBON	1.8K	5%	1/4W	
R718	1-249-422-11	CARBON	2.7K	5%	1/4W	
R719	1-249-426-11	CARBON	5.6K	5%	1/4W	
R720	1-249-424-11	CARBON	3.9K	5%	1/4W	
R722	1-249-419-11	CARBON	1.5K	5%	1/4W	
R723	1-249-426-11	CARBON	5.6K	5%	1/4W	
R724	1-249-419-11	CARBON	1.5K	5%	1/4W	
R725	1-249-412-11	CARBON	390	5%	1/4W	
R726	1-249-416-11	CARBON	820	5%	1/4W	
R727	1-249-413-11	CARBON	470	5%	1/4W	
R728	1-247-897-11	CARBON	560K	5%	1/4W	
R729	1-249-437-11	CARBON	47K	5%	1/4W	
R730	1-249-437-11	CARBON	47K	5%	1/4W	
R731	1-249-413-11	CARBON	470	5%	1/4W	
R733	1-249-413-11	CARBON	470	5%	1/4W	
R734	1-249-434-11	CARBON	27K	5%	1/4W	
R735	1-249-429-11	CARBON	10K	5%	1/4W	
R736	1-249-409-11	CARBON	220	5%	1/4W	
R737	1-249-413-11	CARBON	470	5%	1/4W	
R738	1-249-405-11	CARBON	100	5%	1/4W	
R741	1-249-417-11	CARBON	1K	5%	1/4W	
R744	1-247-903-00	CARBON	1M	5%	1/4W	
R754	1-249-412-11	CARBON	390	5%	1/4W	
R755	1-259-880-11	CARBON	2.2M	5%	1/4W	
R761	1-249-437-11	CARBON	47K	5%	1/4W	
R763	1-249-423-11	CARBON	3.3K	5%	1/4W	
R774	1-249-433-11	CARBON	22K	5%	1/4W	
R775	1-249-435-11	CARBON	33K	5%	1/4W	
R776	1-249-410-11	CARBON	270	5%	1/4W	
R777	1-249-417-11	CARBON	1K	5%	1/4W	
R778	1-249-415-11	CARBON	680	5%	1/4W	
R779	1-249-413-11	CARBON	470	5%	1/4W	
R780	1-249-429-11	CARBON	10K	5%	1/4W	
R781	1-249-422-11	CARBON	2.7K	5%	1/4W	
R801	1-249-417-11	CARBON	1K	5%	1/4W	
R802	1-249-417-11	CARBON	1K	5%	1/4W	
R803	1-249-413-11	CARBON	470	5%	1/4W	
R805	1-249-429-11	CARBON	10K	5%	1/4W	
R806	1-249-427-11	CARBON	6.8K	5%	1/4W	
R807	1-249-417-11	CARBON	1K	5%	1/4W	
R808	1-249-418-11	CARBON	1.2K	5%	1/4W	
R809	1-249-417-11	CARBON	1K	5%	1/4W	
R810	1-249-415-11	CARBON	680	5%	1/4W	
R811	1-249-417-11	CARBON	1K	5%	1/4W	
R812	1-249-423-11	CARBON	3.3K	5%	1/4W	
R813	1-249-416-11	CARBON	820	5%	1/4W	
R814	1-249-415-11	CARBON	680	5%	1/4W	
R815	1-249-429-11	CARBON	10K	5%	1/4W	
R816	1-249-441-11	CARBON	100K	5%	1/4W	
R817	1-249-405-11	CARBON	100	5%	1/4W	
R818	1-249-412-11	CARBON	390	5%	1/4W	
R819	1-249-421-11	CARBON	2.2K	5%	1/4W	
R820	1-249-427-11	CARBON	6.8K	5%	1/4W	
R822	1-249-420-11	CARBON	1.8K	5%	1/4W	
R823	1-249-423-11	CARBON	3.3K	5%	1/4W	
R824	1-249-417-11	CARBON	1K	5%	1/4W	
R825	1-249-422-11	CARBON	2.7K	5%	1/4W	
R826	1-249-427-11	CARBON	6.8K	5%	1/4W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R827	1-249-424-11	CARBON	3.9K	5%	1/4W	
R828	1-249-410-11	CARBON	270	5%	1/4W	
R831	1-249-429-11	CARBON	10K	5%	1/4W	
R832	1-249-409-11	CARBON	220	5%	1/4W	
R833	1-249-411-11	CARBON	330	5%	1/4W	
R834	1-249-422-11	CARBON	2.7K	5%	1/4W	
R835	1-249-411-11	CARBON	330	5%	1/4W	
R836	1-249-411-11	CARBON	330	5%	1/4W	
R837	1-249-425-11	CARBON	4.7K	5%	1/4W	
R838	1-249-437-11	CARBON	47K	5%	1/4W	
R839	1-249-417-11	CARBON	1K	5%	1/4W	
R846	1-249-425-11	CARBON	4.7K	5%	1/4W	
R847	1-249-421-11	CARBON	2.2K	5%	1/4W	
R848	1-249-421-11	CARBON	2.2K	5%	1/4W	
R849	1-249-429-11	CARBON	10K	5%	1/4W	
R850	1-249-421-11	CARBON	2.2K	5%	1/4W	
R851	1-249-434-11	CARBON	27K	5%	1/4W	
R854	1-247-891-00	CARBON	330K	5%	1/4W	
R855	1-249-411-11	CARBON	330	5%	1/4W	
R856	1-247-887-00	CARBON	220K	5%	1/4W	
R857	1-249-417-11	CARBON	1K	5%	1/4W	
R858	1-249-435-11	CARBON	33K	5%	1/4W	
R862	1-249-423-11	CARBON	3.3K	5%	1/4W	
R863	1-249-430-11	CARBON	12K	5%	1/4W	
R864	1-249-425-11	CARBON	4.7K	5%	1/4W	
R865	1-249-441-11	CARBON	100K	5%	1/4W	
R867	1-249-417-11	CARBON	1K	5%	1/4W	
R868	1-249-421-11	CARBON	2.2K	5%	1/4W	
R869	1-249-433-11	CARBON	22K	5%	1/4W	
R870	1-249-435-11	CARBON	33K	5%	1/4W	
R872	1-249-409-11	CARBON	220	5%	1/4W	
R873	1-247-885-00	CARBON	180K	5%	1/4W	
R874	1-249-429-11	CARBON	10K	5%	1/4W	
R880	1-249-417-11	CARBON	1K	5%	1/4W	
R881	1-249-411-11	CARBON	330	5%	1/4W	
R882	1-249-417-11	CARBON	1K	5%	1/4W	
R883	1-249-419-11	CARBON	1.5K	5%	1/4W	
R884	1-249-436-11	CARBON	39K	5%	1/4W	
R885	1-249-429-11	CARBON	10K	5%	1/4W	
R886	1-249-413-11	CARBON	470	5%	1/4W	
R887	1-249-409-11	CARBON	220	5%	1/4W	
R888	1-249-415-11	CARBON	680	5%	1/4W	
R889	1-249-417-11	CARBON	1K	5%	1/4W	
R890	1-249-417-11	CARBON	1K	5%	1/4W	
R891	1-247-887-00	CARBON	220K	5%	1/4W	
R892	1-249-429-11	CARBON	10K	5%	1/4W	
R893	1-249-417-11	CARBON	1K	5%	1/4W	
R894	1-249-405-11	CARBON	100	5%	1/4W	
R895	1-249-413-11	CARBON	470	5%	1/4W	
R896	1-249-429-11	CARBON	10K	5%	1/4W	
R897	1-249-429-11	CARBON	10K	5%	1/4W	
R898	1-249-429-11	CARBON	10K	5%	1/4W	
R899	1-249-429-11	CARBON	10K	5%	1/4W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-238-015-11	RES, ADJ, CARBON 4.7K (AGC)	
RV702	1-238-015-11	RES, ADJ, CARBON 4.7K (DEV)	
RV703	1-238-017-11	RES, ADJ, CARBON 22K (CARR)	
RV704	1-238-017-11	RES, ADJ, CARBON 22K (DARK CLIP)	
RV705	1-238-017-11	RES, ADJ, CARBON 22K (WHITE CLIP)	
RV707	1-238-012-11	RES, ADJ, CARBON 1K (CCD LEVEL)	
RV708	1-238-016-11	RES, ADJ, CARBON 10K (DEMOD GAIN)	
RV710	1-238-012-11	RES, ADJ, CARBON 1K (REC Y)	
RV801	1-238-012-11	RES, ADJ, CARBON 1K (REC C)	
RV850	1-238-011-11	RES, ADJ, CARBON 470 (SECAM DET)	
RV860	1-238-020-11	RES, ADJ, CARBON 100K (PLAY J O G AFC)	
RV861	1-238-012-11	RES, ADJ, CARBON 1K (0.5H CCD LEVEL)	

COIL

Ref.No	Part No.	Description
T802	1-409-467-11	COIL (TRAP 7.8K)
T850	1-409-467-11	COIL (TRAP 7.8K)

CRYSTAL

Ref.No	Part No.	Description
X801	1-577-651-11	VIBRATOR, CRYSTAL (4.433619MHz)

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*A-6754-055-A MD-40 BOARD, COMPLETE
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*3-736-144-01 HOLDER, LED
3-736-149-01 HOLDER, ST SENSOR

CAPACITOR

Ref.No	Part No.	Description			
C001	1-161-494-00	CERAMIC	0.022MF		25V
C002	1-161-494-00	CERAMIC	0.022MF		25V
C003	1-124-240-71	ELECT	10MF	20%	25V
C004	1-161-379-00	CERAMIC	0.01MF	30%	16V
C005	1-124-240-71	ELECT	10MF	20%	25V
C006	1-126-154-11	ELECT	47MF	20%	6.3V
C008	1-164-159-11	CERAMIC	0.1MF		50V
C009	1-164-159-11	CERAMIC	0.1MF		50V
C013	1-164-159-11	CERAMIC	0.1MF		50V
C014	1-164-159-11	CERAMIC	0.1MF		50V
C015	1-164-159-11	CERAMIC	0.1MF		50V
C016	1-124-240-71	ELECT	10MF	20%	25V
C017	1-124-240-71	ELECT	10MF	20%	25V
C018	1-124-240-71	ELECT	10MF	20%	25V
C019	1-162-852-11	CERAMIC	0.15MF	10%	16V
C020	1-162-851-11	CERAMIC	0.1MF	10%	16V
C025	1-124-240-71	ELECT	10MF	20%	25V
C026	1-124-240-71	ELECT	10MF	20%	25V
C027	1-124-240-71	ELECT	10MF	20%	25V

When indicating parts by reference number, please include the board name.

MD-40

CONNECTOR

Ref.No	Part No.	Description	Remark
CN001	*1-564-201-11	PIN HEADER, ANGLE 10P	
CN002	1-569-335-11	CONNECTOR, BOARD TO BOARD 9P	
CN003	1-569-334-11	CONNECTOR, BOARD TO BOARD 5P	
CN004	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN005	1-506-468-11	PIN, CONNECTOR 3P	
CN006	1-569-333-11	CONNECTOR, BOARD TO BOARD 3P	
CN007	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-974-65	DIODE GL451V (LED)	
D002	8-719-109-97	DIODE RD6.8ES-B2	
D003	8-719-109-97	DIODE RD6.8ES-B2	

IC

Ref.No	Part No.	Description	Remark
IC002	8-759-938-12	IC BA10324	
IC004⚠	8-759-420-83	IC AN3814K	
IC005	8-759-008-72	IC LM393N	

PHOTO SENSOR

Ref.No	Part No.	Description	Remark
PH001	8-759-144-33	PHOTO SENSOR PS6002	
PH002	8-759-144-33	PHOTO SENSOR PS6002	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q001	8-729-921-53	PHOTO TRANSISTOR PT483F1	
Q002	8-729-921-53	PHOTO TRANSISTOR PT483F1	

RESISTOR

Ref.No	Part No.	Description				Remark
R001	1-249-423-11	CARBON	3.3K	5%	1/4W	
R002	1-249-423-11	CARBON	3.3K	5%	1/4W	
R003	1-249-426-11	CARBON	5.6K	5%	1/4W	
R004	1-249-426-11	CARBON	5.6K	5%	1/4W	
R005	1-249-420-11	CARBON	1.8K	5%	1/4W	
R006	1-249-441-11	CARBON	100K	5%	1/4W	
R007	1-249-441-11	CARBON	100K	5%	1/4W	
R008	1-249-425-11	CARBON	4.7K	5%	1/4W	
R009	1-249-409-11	CARBON	220	5%	1/4W	
R010	1-249-425-11	CARBON	4.7K	5%	1/4W	
R011	1-249-437-11	CARBON	47K	5%	1/4W	
R012	1-249-421-11	CARBON	2.2K	5%	1/4W	
R013	1-249-429-11	CARBON	10K	5%	1/4W	
R014	1-249-427-11	CARBON	6.8K	5%	1/4W	
R015	1-249-437-11	CARBON	47K	5%	1/4W	
R016	1-249-421-11	CARBON	2.2K	5%	1/4W	
R022	1-249-430-11	CARBON	12K	5%	1/4W	
R023	1-249-429-11	CARBON	10K	5%	1/4W	
R024	1-249-430-11	CARBON	12K	5%	1/4W	
R025	1-249-429-11	CARBON	10K	5%	1/4W	
R026	1-249-437-11	CARBON	47K	5%	1/4W	
R028	1-249-418-11	CARBON	1.2K	5%	1/4W	
R029	1-249-395-11	CARBON	15	5%	1/4W	
R030	1-249-395-11	CARBON	15	5%	1/4W	
R031	1-249-395-11	CARBON	15	5%	1/4W	
R032 ⚠	1-216-347-11	METAL OXIDE	0.68	5%	1W	F

SWITCH

Ref.No	Part No.	Description	Remark
S001	1-570-953-11	SWITCH, PUSH (1 KEY)	
S002	1-570-953-11	SWITCH, PUSH (1 KEY)	

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Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
	*A-6713-390-A	CA-43 BOARD. COMPLETE **********************				
	*3-746-017-01	CASE (LOWER), AU				
	*3-749-703-01	CASE (M3)(MAIN), AU				

CAPACITOR

Ref.No	Part No.	Description				Remark
C101	1-161-047-00	CERAMIC	0.0047MF	10%	25V	
C102	1-164-070-11	CERAMIC	100PF	5%	50V	
C103	1-162-839-11	CERAMIC	0.01MF	10%	16V	
C104	1-126-157-11	ELECT	10MF	20%	6.3V	
C105	1-164-091-11	CERAMIC	0.0022MF	10%	50V	
C106	1-124-499-11	ELECT	1MF	20%	50V	
C107	1-164-097-11	CERAMIC	0.022MF		50V	
C108	1-126-154-11	ELECT	47MF	20%	6.3V	
C109	1-126-160-11	ELECT	1MF	20%	50V	
C110	1-164-046-11	CERAMIC	10PF	0.5PF	50V	
C111	1-126-154-11	ELECT	47MF	20%	6.3V	
C112	1-164-096-11	CERAMIC	0.01MF		50V	
C113	1-126-154-11	ELECT	47MF	20%	6.3V	
C250	1-109-675-11	MICA	120PF	5%	500V	
C251	1-124-589-11	ELECT	47MF	20%	10V	
C252	1-164-083-11	CERAMIC	680PF	10%	50V	
C254	1-164-092-11	CERAMIC	0.0033MF	10%	25V	
C255	1-126-160-11	ELECT	1MF	20%	50V	
C256	1-124-465-00	ELECT	0.47MF	20%	50V	
C257	1-124-589-11	ELECT	47MF	20%	10V	
C258	1-130-483-00	MYLAR	0.01MF	5%	50V	
C259	1-126-160-11	ELECT	1MF	20%	50V	
C260	1-164-085-11	CERAMIC	0.001MF	10%	50V	
C261	1-124-234-00	ELECT	22MF	20%	10V	
C263	1-164-086-11	CERAMIC	0.0012MF	10%	50V	
C264	1-102-978-00	CERAMIC	220PF	5%	50V	
C265	1-126-160-11	ELECT	1MF	20%	50V	
C266	1-124-589-11	ELECT	47MF	20%	10V	
C267	1-124-589-11	ELECT	47MF	20%	10V	
C268	1-126-160-11	ELECT	1MF	20%	50V	
C269	1-126-160-11	ELECT	1MF	20%	50V	
C270	1-126-160-11	ELECT	1MF	20%	50V	
C271	1-130-488-00	MYLAR	0.027MF	5%	50V	
C273	1-130-488-00	MYLAR	0.027MF	5%	50V	
C274	1-126-094-11	ELECT	4.7MF	20%	16V	
C275	1-124-589-11	ELECT	47MF	20%	10V	
C276	1-164-087-11	CERAMIC	0.0015MF	10%	50V	
C277	1-162-839-11	CERAMIC	0.01MF	10%	16V	
C278	1-136-561-11	FILM	0.0068MF	10%	630V	
C280	1-130-483-00	MYLAR	0.01MF	5%	50V	
C281	1-162-844-11	CERAMIC	0.027MF	10%	16V	
C282	1-124-589-11	ELECT	47MF	20%	10V	
C283	1-137-075-11	FILM	0.068MF	5%	100V	
C284	1-164-087-11	CERAMIC	0.0015MF	10%	50V	
C285	1-164-084-11	CERAMIC	820PF	10%	50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN101	1-506-482-11	PIN, CONNECTOR 3P	
CN102	*1-563-465-11	SOCKET, CONNECTOR 14P	
CN201	*1-563-676-11	SOCKET, CONNECTOR 9P	
CN213	1-506-482-11	PIN, CONNECTOR 3P	
CN214	1-506-469-11	PIN, CONNECTOR 4P	
CN215	1-506-468-11	PIN, CONNECTOR 3P	

DIODE

Ref.No	Part No.	Description	Remark
D101	8-719-911-19	DIODE 1SS19	
D102	8-719-991-19	DIODE 1SS19	
D103	8-719-991-19	DIODE 1SS19	
D104	8-719-991-19	DIODE 1SS19	
D105	8-719-991-19	DIODE 1SS19	
D106	8-719-991-19	DIODE 1SS19	

IC

Ref.No	Part No.	Description	Remark
IC101	8-759-632-58	IC M52435P	
IC102	8-759-000-49	IC MC14066BCP	
IC257	8-759-805-20	IC LA7297	

COIL

Ref.No	Part No.	Description		Remark
L101	1-408-413-00	INDUCTOR	22UH	
L251	1-410-070-21	INDUCTOR	8.2MMH	
L252	1-412-092-11	INDUCTOR, SMALL TYPE	22MMH	
L253	1-410-687-11	INDUCTOR	1.2MMH	
L254	1-408-426-00	INDUCTOR	270UH	
L255	1-408-409-00	INDUCTOR	10UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q102	8-729-900-89	TRANSISTOR DTC144ES	
Q103	8-729-900-89	TRANSISTOR DTC144ES	
Q104	8-729-115-10	TRANSISTOR 2SK105A-10	
Q107	8-729-920-70	TRANSISTOR 2SC1740S-QR	
Q251	8-729-926-14	TRANSISTOR 2SD1292	
Q253	8-729-802-24	TRANSISTOR 2SB1014-4	
Q254	8-729-926-14	TRANSISTOR 2SD1292	

RESISTOR

Ref.No	Part No.	Description				Remark
R101	1-249-437-11	CARBON	47K	5%	1/4W	
R102	1-249-433-11	CARBON	22K	5%	1/4W	
R103	1-249-433-11	CARBON	22K	5%	1/4W	
R104	1-249-429-11	CARBON	10K	5%	1/4W	
R105	1-249-433-11	CARBON	22K	5%	1/4W	
R106	1-249-429-11	CARBON	10K	5%	1/4W	
R107	1-249-429-11	CARBON	10K	5%	1/4W	
R108	1-247-887-00	CARBON	220K	5%	1/4W	
R109	1-249-441-11	CARBON	100K	5%	1/4W	
R110	1-249-405-11	CARBON	100	5%	1/4W	
R111	1-247-885-00	CARBON	180K	5%	1/4W	
R112	1-247-887-00	CARBON	220K	5%	1/4W	
R113	1-249-429-11	CARBON	10K	5%	1/4W	
R114	1-247-889-00	CARBON	270K	5%	1/4W	
R115	1-249-413-11	CARBON	470	5%	1/4W	
R116	1-249-417-11	CARBON	1K	5%	1/4W	
R117	1-249-429-11	CARBON	10K	5%	1/4W	
R118	1-249-437-11	CARBON	47K	5%	1/4W	
R119	1-249-429-11	CARBON	10K	5%	1/4W	
R120	1-249-429-11	CARBON	10K	5%	1/4W	
R121	1-249-433-11	CARBON	22K	5%	1/4W	

When indicating parts by reference number, please include the board name.

CA-43

Ref.No	Part No.	Description				Remark
R122	1-249-427-11	CARBON	6.8K	5%	1/4W	
R124	1-249-433-11	CARBON	22K	5%	1/4W	
R125	1-249-437-11	CARBON	47K	5%	1/4W	
R126	1-249-437-11	CARBON	47K	5%	1/4W	
R127	1-249-429-11	CARBON	10K	5%	1/4W	
R128	1-249-433-11	CARBON	22K	5%	1/4W	
R129	1-249-437-11	CARBON	47K	5%	1/4W	
R252	1-249-393-11	CARBON	10	5%	1/4W	
R253	1-249-412-11	CARBON	390	5%	1/4W	
R254	1-249-411-11	CARBON	330	5%	1/4W	
R255	1-247-885-00	CARBON	180K	5%	1/4W	
R256	1-249-429-11	CARBON	10K	5%	1/4W	
R257	1-249-437-11	CARBON	47K	5%	1/4W	
R258	1-249-436-11	CARBON	39K	5%	1/4W	
R259	1-249-423-11	CARBON	3.3K	5%	1/4W	
R260	1-247-903-00	CARBON	1M	5%	1/4W	
R262	1-249-441-11	CARBON	100K	5%	1/4W	
R263	1-249-432-11	CARBON	18K	5%	1/4W	
R264	1-249-428-11	CARBON	8.2K	5%	1/4W	
R265	1-249-429-11	CARBON	10K	5%	1/4W	
R266	1-249-429-11	CARBON	10K	5%	1/4W	
R267	1-249-429-11	CARBON	10K	5%	1/4W	
R268	1-249-429-11	CARBON	10K	5%	1/4W	
R269	1-249-407-11	CARBON	150	5%	1/4W	
R270	1-249-422-11	CARBON	2.7K	5%	1/4W	
R272	1-249-416-11	CARBON	820	5%	1/4W	
R273	1-249-428-11	CARBON	8.2K	5%	1/4W	
R274	1-249-434-11	CARBON	27K	5%	1/4W	
R275	1-249-387-11	CARBON	3.3	5%	1/4W	F
R277	1-249-429-11	CARBON	10K	5%	1/4W	
R278	1-249-433-11	CARBON	22K	5%	1/4W	
R282	1-249-429-11	CARBON	10K	5%	1/4W	
R283	1-249-387-11	CARBON	3.3	5%	1/4W	F
R291	1-249-436-11	CARBON	39K	5%	1/4W	

VARIABLE RESISTOR

RV251	1-230-500-11	RES, ADJ, CARBON 220K

TRANSFORMER

T251	1-433-330-11	TRANSFORMER, BIAS OSCILLATION
T252	1-406-349-11	TRANSISTOR OSCILLATION

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MISCELLANEOUS

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Ref.No	Part No.	Description	Remark
	A-6761-129-A	HEAD BLOCK ASSY, ACE	
	⚠.1-413-562-11	SWITCHING BLOCK (SLV-474/474VP)	
	⚠.1-413-563-11	SWITCHING BLOCK (SLV-474UB)	
	1-466-315-51	SWITCH BLOCK, CONTROL (SLV-474UB)	
	1-466-315-61	SWITCH BLOCK, CONTROL (SLV-474)	
	1-466-315-71	SWITCH BLOCK, CONTROL (SLV-474VP)	
	1-543-647-11	HEAD, FE	
M903	X-3733-302-1	MOTOR ASSY, CAM	
M904	X-3727-784-1	MOTOR ASSY	
S001	1-571-920-11	SWITCH, ROTARY	

****

ACCESSORIES AND PACKING MATERIALS

****

Part No.	Description	Remark
1-465-557-11	REMOTE COMMANDER (RMT-V474)	
1-551-513-00	CABLE, COAXAL ASSY	
⚠1-558-032-11	CORD, POWER (SLV-474UB)	
⚠1-575-131-11	CORD, POWER (SLV-474)	
⚠1-575-132-11	CORD, POWER (SLV-474VP)	
*3-744-232-01	CUSHION (UPPER)	
*3-744-233-01	CUSHION (LOWER)	
*3-746-027-71	INDIVIDUAL CARTON (SLV-474)	
*3-746-027-81	INDIVIDUAL CARTON (SLV-474UB)	
*3-746-027-91	INDIVIDUAL CARTON (SLV-474VP)	
3-752-073-11	MANUAL, INSTRUCTION (ENGLISH :SLV-474UB)	
3-752-073-41	MANUAL, INSTRUCTION (FRENCH/GERMAN/DUTCH/ITALY :SLV-474)	
3-752-073-51	MANUAL, INSTRUCTION (SWEDSH/ITALIAN/ PORTGUESE/SPANISH :SLV-474VP)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7
ELECTRICAL ADJUSTMENTS

During the Adjustment, See the Parts Arrangement Diagram for the Adjustments on Page 167–168.

Necessary items and indications for total adjustment of electric circuit of this machine will be described in this chapter.

[Using Instruments]

1) Color TV
2) Osicilloscope 1 or 2 phenomera, band 15MHz min, delay mode, as provided.
3) Frequency counter (min. 8 digits)
4) PAL pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion factor meter
10) Alignment tape
    Part Code: PAL; H7099052H (MH-2)
11) RF sweep signal generator
12) Vectorscope

[Connection]

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

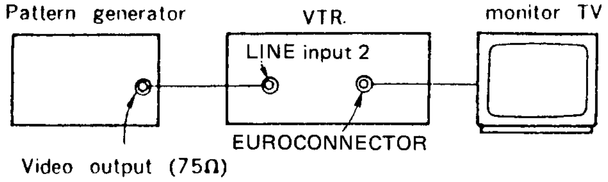

Pattern generator
VTR.
monitor TV
LINE input 2
EUROCONNECTOR
Video output (75Ω)

Fig. 7-1.

[Set-up Adjustment]

Video signals output by a pattern generator are used as adjustment signals when marking the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope CN208 pin ① (LINE IN VIDEO) on the MA-67 Board. Check that the amplitudes of video SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3 V, respectively, and the level ratio of the burst signal and "red" signal is 0.30 : 0.66 (PAL). Fig. 2-2. shows video signals (color bars) used in marking the electrical adjustment.

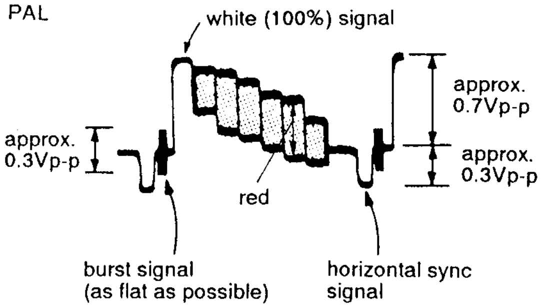

PAL
white (100%) signal
approx.
0.7Vp-p
approx.
0.3Vp-p
approx.
0.3Vp-p
red
burst signal
(as flat as possible)
horizontal sync
signal

Fig. 7-2.

[PAL Alignment Tape (MH-2)]

	Mode	Time	Video signal	Audio signal
1	SP	10 minutes	Stair-step	6 kHz
2		5 minutes	–	3 kHz
3		10 minutes	Color bar	1 kHz
4		3 minutes	RF sweep	–

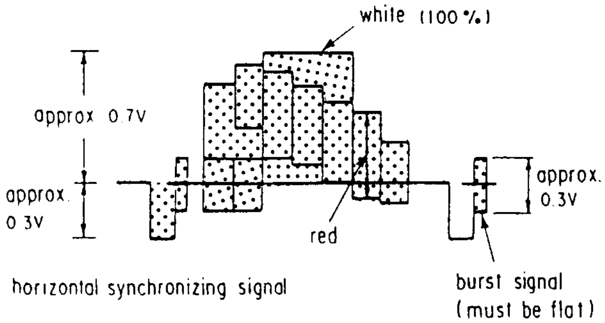

white (100%)
approx 0.7V
approx.
0.3V
red
approx.
0.3V
horizontal synchronizing signal
burst signal
(must be flat)

Fig. 7-3.

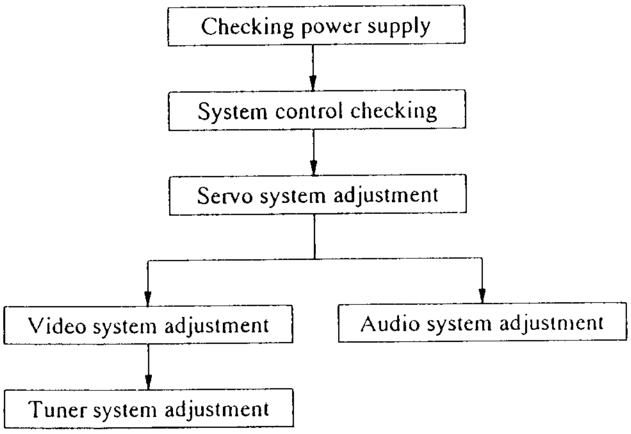
[Standard input/output level and impedance]

Input/output terminal

Video inputs	LINE IN 2: phono jacks EUROCONNECTOR: 21-pin (pin 20) 1Vp-p, 75ohms, unbalanced, sync negative
Audio inputs	LINE IN 2: phono jacks 47kilohms, − 7.5dBs (0dBs=0.775Vrms) EUROCONNECTOR: 21-pin (pins 2 and 6) More than 10kilohms, − 4dBs
Video outputs	EUROCONNECTOR: 21-pin (pin 19) 1Vp-p, 75ohms, unbalanced sync negative
Audio outputs	EUROCONNECTOR: 21-pin (pins 1 and 3) Output impedance: less than 1kilohm − 4dBs with 10kilohms load
CONTROL S IN	Minijack (1)
CONTROL S OUT	Minijack (1)
CONTROL L	5P−DIN (1)

[Adjusting Sequence]

Make the electrical adjustment in the following sequence.



7-1. POWER SUPPLY CHECK (MA-67 Board)

Mode	E-E
Measurement equipment	Digital voltmeter
MTR 12V check	
Measurement point	CN210 pins ②, ③
Specified value	12.0±0.3V dc
UNREG 17V check	
Measurement point	CN210 pin ①
Specified value	17.0±0.3V dc
SWD 5V check	
Measurement point	CN210 pin ⑨
Specified value	5.2±0.1V dc
UNSWD 5.8V check	
Measurement point	CN210 pin ⑧
Specified value	5.8±0.2V dc
UNREG 45V check	
Measurement point	CN210 pin ⑮
Specified value	45.0±3.0V dc
UNREG −30V check	
Measurement point	CN210 pin ⑱
Specified value	−30.0±2.0V dc
DC 3.6V check	
Measurement point	CN210 pin ⑰
Specified value	3.6±0.2V dc
UNSW 12V check	
Measurement point	CN210 pin ⑥
Specified value	12.0±0.3V dc
SW 9V check	
Measurement point	CN210 pin ⑦
Specified value	9.0±0.0V dc

[Checking Method]

1) Confirm that each voltage satisfies its specified value.

7-2. SYSTEM CONTROL CHECK

7-2-1. Clock Oscillation Frequency Check (MA-67 Board)

Mode	E-E
Signal	None
Measurement point	IC401 pin ㉘
Measurement equipment	Frequency counter
Specified value	17,734,475 ± 100Hz

Note: Connect a 10KΩ resistor to the frequency counter.

[Checking Method]

1) Confirm that the frequency at the IC401 pin㉘ is 17,734,475 ± 100Hz.

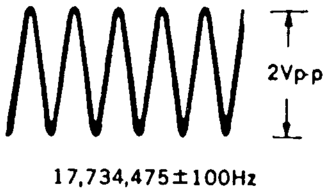


Fig. 7-4.

7-3. SERVO SYSTEM ADJUSTMENT

[Adjustment Sequence]

7-3-1. Character Position Adjustment 1
7-3-2. Character Position Adjustment 2
7-3-3. Switching Position Adjustment

7-3-1. Character Position Adjustment 1 (MA-67 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC401 pin ㉚
Measurement equipment	Oscilloscope
Adjustment element	RV451
Specified value	64 ± 0.5 μsec

[Adjustment Method]

1) Adjust to 64±0.5μsec.

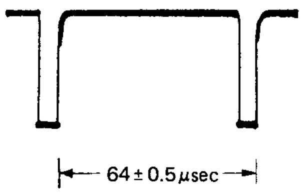


Fig. 7-5.

7-3-2. Character Position Adjustment 2 (MA-67 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC401 pin ⑤
Measurement equipment	Frequency counter
Adjustment element	CV401
Specified value	6,900 ± 200kHz

Note 1: Connect a 10KΩ resistor to the frequency counter.

Note 2: Connect the frequency counter through a prove of high input impedance (about 10MΩ) and low capacity (10pF or less).

[Adjustment Method]

1) Adjust to 6,980±200kHz with CV401.

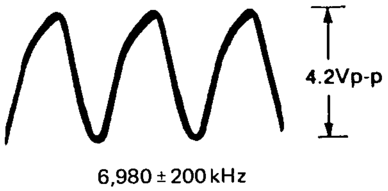


Fig. 7-6.

7-3-3. Switching Position Adjustment (MA-67 Board)

Mode	PB
Signal	Alignment tape SP stair-step
Measurement point	CH1: CN216 pin ⑲ (VIDEO) CH2: CN204 pin ⑦ (RFSWP)
Measurement equipment	Oscilloscope
Adjustment element	RV501
Specified value	6.5 ± 0.5H (410 ± 30μsec)

[Adjustment Method]

1) Press the tracking adjustment buttons ▲ and ▼ at the same time so that the tracking condition is the center portion.
   (AUTO TRACKING indicator is turns off.)
2) Adjust to 6.5±0.5H (410±30μsec) with RV501.

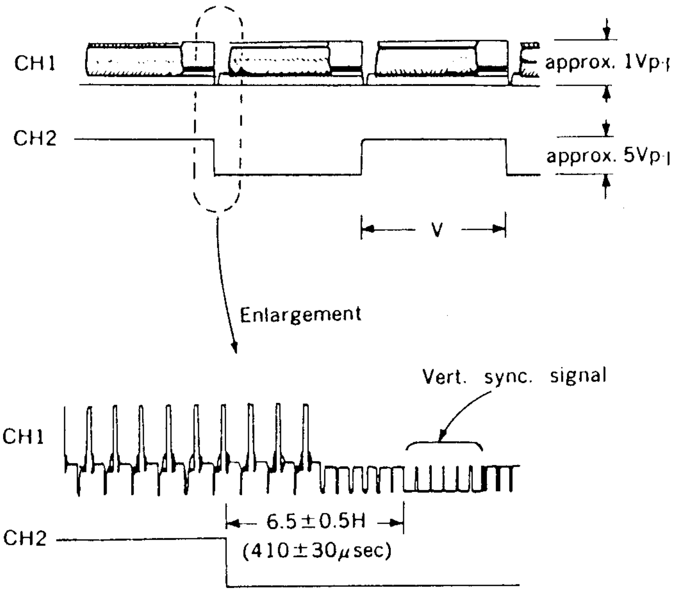


Fig. 7-7.

7-4. VIDEO SYSTEM ADJUSTMENT

Adjust the video system in the following sequence as a rule. The color video signal supplied from the pattern generator is used as a video input signal for video system sdjustment in the recording mode.

Make sure that sync. and color burst signals meet requirements specified at set up of adjustment shown in Fig.8-1.

[Adjustment Sequence]

7-4-1. X'tal Oscillation Frequency Check
7-4-2. Sync. AGC Adjustment
7-4-3. CCD Level Adjustment
7-4-4. Sync. Chip Carrier Set and Deviation Adjustment
7-4-5. White Clip, Dark Clip Adjustment
7-4-6. Recording Y Signal Level Adjustment
7-4-7. Recording Chroma Level Adjustment
7-4-8. Playback Y Signal Level Adjustment
7-4-9. PAL Jog AFC Adjustment
7-4-10. 0.5H CCD Level Adjustment
7-4-11. SECAM Detection Adjustment

7-4-1. X'tal Oscillation Frequency Check (YC-90 Board)

Mode	PB
Signal	Alignment tape SP color bar
Measurement point	IC702 pin ③
Measurement equipment	Frequency counter, Oscilloscope
Specified value	13,300,857 ± 200Hz

Note: Connect the frequency counter through a probe of high input impedance (about 10MΩ) and low capacity (10pF or less).

[Adjustment Method]

1) Confirm the frequency of IC702 pin ③ 13,300,857 ± 200Hz.
2) At the same time confirm the level is 400 ± 10mVp-p.

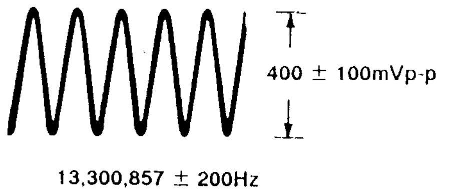


Fig. 7-8.

7-4-2. Sync. AGC Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	EUROCONNECTOR: 21 pin (Pin ⑲)
Measurement equipment	Oscilloscope
Adjustment element	RV701
Specified value	1.00 ± 0.05Vp-p

[Adjustment Method]

1) Adjust to 1.00 ± 0.05Vp-p with RV701.

YC-90 BOARD:

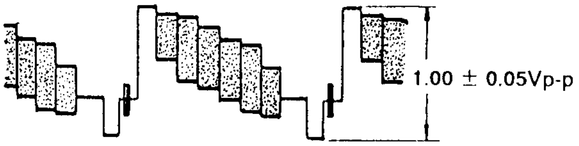


Fig. 7-9.

7-4-3. CCD Level Adjustment (YC-90 Board)

Mode	PB
Signal	Alignment tape SP color bar
Measurement point	IC701 pin ⑩
Measurement equipment	Oscilloscope
Adjustment element	RV707
Specified value	Minimum (within 150mVp-p)

[Adjustment Method]

1) Adjust the level to the minimum (within 150mVp-p) with RV707.

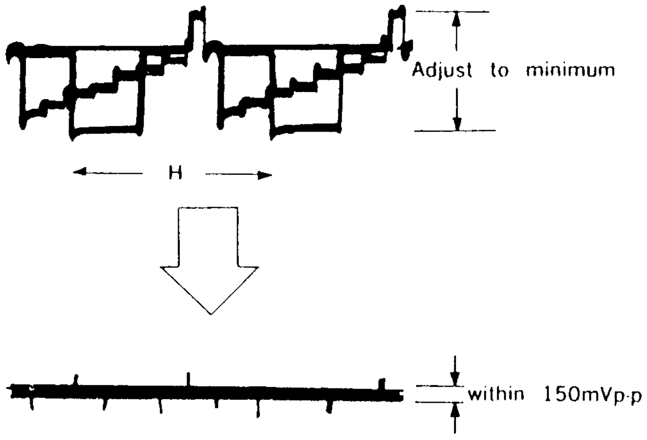


Fig. 7-10.

7-4-4. Sync. Chip Carrier Set and Deviation Adjustment (YC-90 Board)

Sync chip carrier set	
Mode	E-E
Signal	None (Note 2)
Measurement point	IC701 pin ㉔
Measurement equipment	Frequency counter
Adjustment element	RV703
Specified value	3.80 ± 0.05MHz
Deviation adjustment	
Mode	REC and PB
Signal	Color bar
Measurement point	EUROCONNECTOR: 21 pin (Pin ⑲)
Measurement equipment	Oscilloscope
Adjustment element	RV702
Specified value	1.00 ± 0.05Vp-p

Note 1: Video output terminal must be terminated at 75Ω.

Note 2: To make no signal input, insert a shorting plug into a LINE INPUT terminal.

[Adjustment Method]

1) Input the color bar signal to place the system in the E-E mode.
2) Make a no-signal state and select the E-E mode. (Note 2)
3) Connect the frequency counter to the IC701 pin ㉔ and adjust to 3.80 ± 0.05MHz with RV703.
4) Input the color bar signal to make recording.
5) Play back a recorded tape portion and check the playback Y signal level of VIDEO OUT terminal.
   Specified value: 1.00 ± 0.05Vp-p.
6) When the specified value is not met, input the color bar signal to select the E-E mode. Adjust RV702 to correct a play back Y signal level error, and then, repeat the steps 2) through 5) above.

PB Y Level

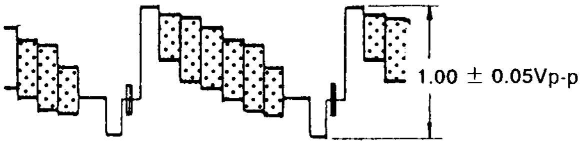


Fig. 7-11.

7-4-5. White Clip, Dark Clip Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC701 pin ⑳
Measurement equipment	Oscilloscope
Adjustment element	White clip: RV705 Dark clip: RV704
Specified value	White clip: 185±10% Dark clip: 45±10%

[Adjustment Method]

1) Adjust with RV705 so that the white clip level becomes to 185±10% of the white level (100%).
2) Adjust with RV704 so that the dark clip level becomes to 45 ± 10% of the white level (100%).

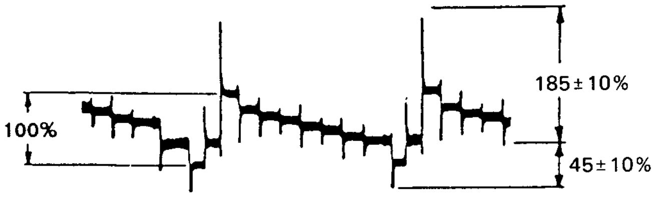


Fig. 7-12.

7-4-6. Recording Y Signal Level Adjustment (YC-90 Board)

Mode	E-E
Signal	None
Measurement point	CN002 pin②(RP-100 Board)
Measurement equipment	Oscilloscope
Adjusting element	RV710
Specified value	2.2±0.1 Vp-p

[Adjustment Method]

1) Adjust with RV710 so that the waveform on CN002 pin ② becomes 2.2 ± 0.1 Vp-p.

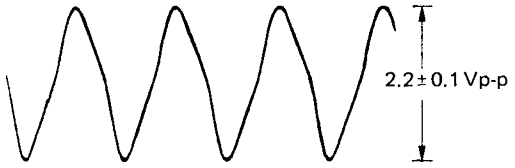


Fig. 7-13.

7-4-7. Recording Chroma Level Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	CN704 pin ④
Measurement equipment	Oscilloscope
Adjustment element	RV801
Specified value	PAL : 165±10mVp-p

[Adjustment Method]

1) Adjust to the specified value with RV801.

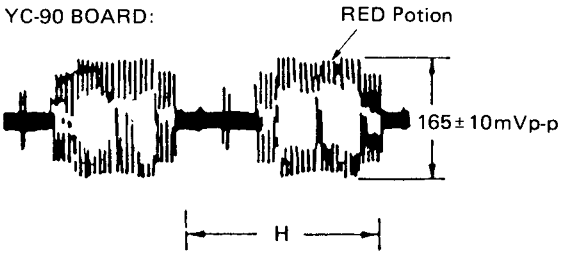


Fig. 7-14.

7-4-8. Playback Y Signal Level Adjustment (YC-90 Board)

Mode	PB
Signal	Alignment tape SP color bar
Measurement point	EUROCONNECTOR: 21 pin (Pin ⑲)
Measurement equipment	Oscilloscope
Adjustment element	RV708
Specified value	1.00 ± 0.05Vp-p

Note: Make this adjustment with the EDIT switch turned off.

[Adjustment Method]

1) Adjust to 1.00 ± 0.05Vp-p with RV708.

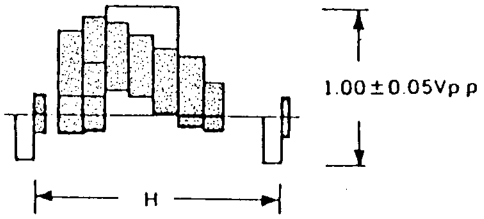


Fig. 7-15.

7-4-9. PAL Jog AFC Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC860 pin ⑲ and ⑳
Measurement equipment	Digital voltmeter Oscilloscope
Adjustment element	RV860
Specified value	2.50 ± 0.05Vdc

[Adjustment Method]

1) Adjust with RV860 so that the voltage on IC860 pin ⑲ becomes 2.50 ± 0.05Vdc.
2) At the same time, confirm the waveform on IC860 pin ⑳ becomes to as following figure.

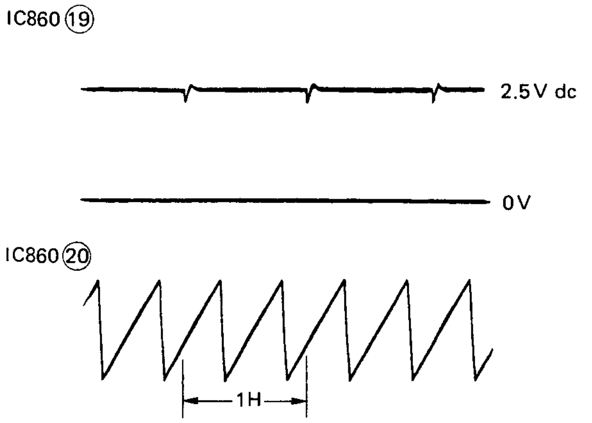


Fig. 7-16.

7-4-10. 0.5H CCD Level Adjustment (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC862 pin ② and ⑦
Measurement equipment	Oscilloscope
Adjustment element	RV861
Specified value	Following

[Adjustment Method]

1) Adjust with RV861 so that the level of the waveform on IC862 pin ② becomes the same level as on pin ⑦

YC-90 BOARD:

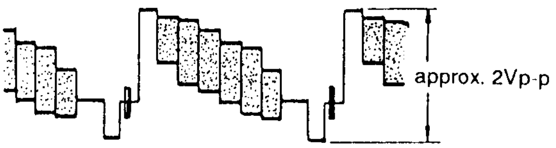


Fig. 7-17.

7-4-11. SECAM Detection Adjustment (SLV-474VP) (YC-90 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC850 pin ⑨
Measurement equipment	Oscilloscope
Adjustment element	RV850
Specified value	4.0 ± 0.1Vp-p

[Adjustment Method]

1) Adjust with RV850 so that the waveform on IC850 pin ⑨ becomes to the specified value.

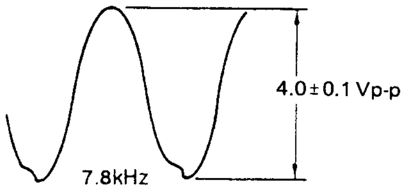


Fig. 7-18.

7-5. DIGITAL ADJUSTMENTS

[Adjustment Sequence]

7-5-1. Decoder-oscillated Free Run Frequency Adjustment
7-5-2. Encoder-oscillated Free Run Frequency Adjustment
7-5-3. TINT Adjustment
7-5-4. Color Level Adjustment
7-5-5. Hue Adjustment
7-5-6. Write Clock Adjustment

7-5-1. Decoder-oscillated Free Run Frequency Adjustment (DG-2 Board)

Mode	E-E
Signal	Alignment tape SP monoscope
Measurement point	IC110 pin ⑪
Measurement equipment	Frequency counter
Adjustment element	CT103
Specified value	4,433,619±20Hz

[Connection]

1) Connect IC110 pin ㉗ and VCC with a jumper wire.

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc).of high input impedance (10M Ω or more) and low capacity (10pF or less).

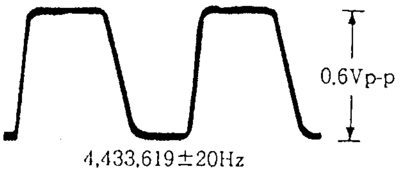


Fig. 7-19.

7-5-2. Encoder-oscillated Free Run Frequency Adjustment (DG-2 Board)

Mode	E-E
Signal	Alignment tape SP monoscope
Measurement point	IC101 pin ⑲
Measurement equipment	Frequency counter
Adjustment element	CT101
Specified value	17,734,476±80Hz

[Connection]

1) Connect IC101 pin ⑱ and VCC with a jumper wire.

Note : Connect the frequency counter through a buffer amplifier (oscilloscope, etc).of high input impedance (10MΩ or more) and low capacity (10pF or less).

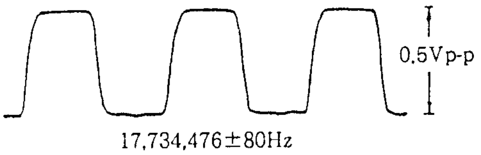


Fig. 7-20.

7-5-3. (a) TINT Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IC112 pin ⑤
Measurement equipment	Oscilloscope
Adjustment element	RV103
Specified value	A=B

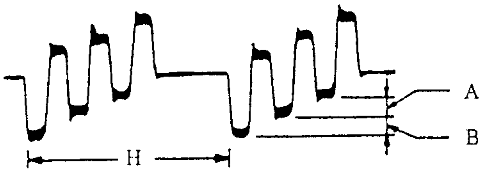
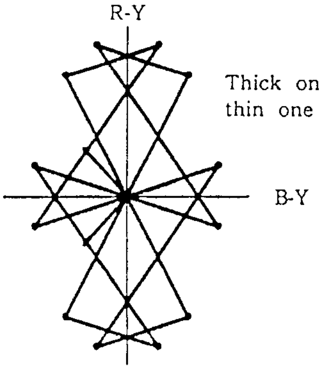


Fig. 7-21.

7-5-3. (b) TINT Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IO-20 board (EURO-AV)
Measurement equipment	Vectorscope
Adjustment element	RV103
Specified value	Adjust the vector phase of the small image so that the double waveforms become one clear waveform.



Thick one for parent,
thin one for child.

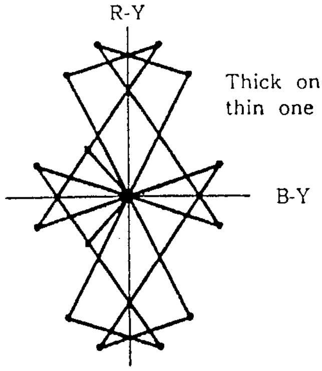
Fig. 7-22.

7-5-4. Color Level Adjustment (DG-2 Board)

Mode	E-E (P in P)
Signal	Color bar
Measurement point	IO-20 board (EURO-AV OUT)
Measurement equipment	Vectorscope
Adjustment element	RV102
Specified value	The phases of the parent and child screens should be the same.

[Adjustment Method]

1) With RV102, match the phases of the parent and child screens.



Thick one for parent,
thin one for child.

Fig. 7-23.